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The Effect of Pre-transfer Grade Point Average on Post-Transfer Grade Point Average as an Indicator of Persistence from Two-year Colleges to State Colleges and Universities within the University System of Georgia

Marci Middleton
Georgia State University

ACCEPTANCE

This dissertation, THE EFFECT OF PRE-TRANSFER GRADE POINT AVERAGE ON POST-TRANSFER GRADE POINT AVERAGE AS AN INDICATOR OF PERSISTENCE FROM TWO-YEAR COLLEGES TO STATE COLLEGES AND UNIVERSITIES WITHIN THE UNIVERSITY SYSTEM OF GEORGIA, by MARCI MARCELL MIDDLETON, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree Doctor of Philosophy in the College of Education, Georgia State University.

The Dissertation Advisory Committee and the student's Department Chair, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty. The Dean of the College of Education concurs.

Philo Hutcheson, Ph.D.
Committee Chair

Sheryl A. Gowen, Ph.D.
Committee Member

Carolyn Furlow, Ph.D.
Committee Member

Lucretia Payton-Stewart, Ph.D.
Committee Member

Date

Sheryl A. Gowen, Ph.D.
Chair, Department of Educational Policy Studies

Randy W. Kamphaus, Ph.D.
Dean and Distinguished Research Professor
College of Education

AUTHOR'S STATEMENT

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Marci M. Middleton

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Marci Marcell Middleton
P. O. Box 490277
Atlanta, Georgia 30349

The director of this dissertation is:

Dr. Philo Hutcheson
Department of Educational Policy Studies
College of Education
Georgia State University
Atlanta, Georgia 30303 – 3083

VITA

Marci Marcell Middleton

ADDRESS: P. O. Box 490277
Atlanta, Georgia 30349

EDUCATION:

Ph.D.	2008	Georgia State University Educational Policy Studies
M.S.	2001	Georgia State University Human Resources Management
M.B.A.	1995	Augusta State University Master of Business Administration
B.A.	1989	Emory University, Sociology
B.A.	1989	Emory University, Psychology

PROFESSIONAL EXPERIENCE:

2004 – Present	Director, Academic Programs Board of Regents, University System of Georgia
1996 – 2004	Academic Coordinator Board of Regents, University System of Georgia

PROFESSIONAL SOCIETIES AND ORGANIZATIONS:

2008 – Present	Community College Baccalaureate Association
2005 – Present	Council for the Study of Community Colleges

PRESENTATIONS AND PUBLICATIONS:

Middleton, M. (2008). The emergence of baccalaureate degrees at two-year colleges in the University System of Georgia. Paper presented at the 8th annual international conference of the Community College Baccalaureate Association.

Middleton, M. (2007). Acknowledging commonality or celebrating difference?: An analysis of general education requirements prescribed by higher education agencies affiliated with the Southern Regional Education Board. National Association of African-American Studies (NAAS) and Affiliates, 2007 Monograph Series.

Middleton, M. (2005). Competing visions or alternative agendas? Viewing community colleges through economic impact, access, and achievement lenses. Paper presented at the 47th annual conference of the Council for the Study of Community Colleges (CSCC), Boston, Massachusetts.

Middleton, M. (2005). Quiet Grace, Clothed Spirit: Oseola McCarty and the Benevolence of a Gift. In M. Gasman and K. V. Sedgwick (Eds.), *Uplifting a People: Essays on African American Philanthropy and Education* (pp. 167 - 175). New York: Peter Lang Publishing, Inc.

ABSTRACT

THE EFFECT OF PRE-TRANSFER GRADE POINT AVERAGE ON POST-TRANSFER GRADE POINT AVERAGE AS AN INDICATOR OF PERSISTENCE FROM TWO-YEAR COLLEGES TO STATE COLLEGES AND UNIVERSITIES WITHIN THE UNIVERSITY SYSTEM OF GEORGIA

by

Marci M. Middleton

Community colleges provide an important access point for students who want to continue their educational studies and obtain a baccalaureate or advanced degree. Students have the opportunity to complete core curricula or the general education component of their education at a two-year college and then transfer to a four-year college or university in many higher education systems around the country including the University System of Georgia.

Using linear regression initially and later multiple regression, this quantitative research study tested grade point average to project student academic performance at a state or research university upon transfer to such institutions. Data obtained for state systems institutions from fall 2001 through fall 2005 was used for the administration of this study. Research questions concerning the relationship between grade point averages before and after transfer were examined at various matriculation points with specific attention paid to pre-transfer grade point average and post-transfer grade assessment at three points across a student's academic career. In addition, the strength of the relationship was tested for the aggregate student cohort of matriculants from fall 2001 through fall 2005 as well as sub-groups within the cohort.

THE EFFECT OF PRE-TRANSFER GRADE POINT AVERAGE ON POST-TRANSFER GRADE POINT AVERAGE AS AN INDICATOR OF PERSISTENCE FROM TWO-YEAR COLLEGES TO STATE COLLEGES AND UNIVERSITIES WITHIN THE UNIVERSITY SYSTEM OF GEORGIA

by
Marci M. Middleton

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ABBREVIATIONS

AACC	American Association of Community Colleges
ACT	American College Testing (In 1996, the company shortened its name to simply "ACT®" to better reflect the broad array of programs and services offered beyond college entrance testing. Reference: http://www.act.org/aboutact/faq.html as of June 30, 2004.)
BOR	Board of Regents
BPS	Beginning Postsecondary Students Longitudinal Study
CBMTS	Course-based model of transfer success
COC	Commission on Colleges
CPC	College Preparatory Curriculum
CSCC	Center for the Study of Community Colleges
ECS	Education Commission of the States
DEEP	Documenting Effective Educational Practice
DTAE	Department of Technical and Adult Education
FERPA	Family Educational Rights and Privacy Act of 1974, the Privacy Act, or the Buckley Amendment
FIPSE	Funds for the Improvement of Postsecondary Education
FTE	Full-time Equivalent
GED	General Education High School Diploma or General Equivalency Diploma
GPA	Grade Point Average

ABBREVIATIONS (continued)

LS	Learning Support
NCES	National Center for Educational Statistics
NETC	National Effective Transfer Consortium
NLS-72	National Longitudinal Study of the Class of 1972
N/R	Not Reported
NSSE	National Survey of Student Engagement
NTAP	National Transfer Assembly Project
PBI	Predominantly Black Institution
PWI	Predominantly White Institution
SACS	Southern Association of Colleges and Schools of the Commission on Colleges
SAT®	SAT (formerly Scholastic Assessment Test and earlier the Scholastic Aptitude Test)
SES	Socioeconomic Status
SHEEO	State Higher Education Executive Officers
SIPP	Survey of Income and Program Participation
SIRS	Student Information Reporting System
SREB	Southern Regional Education Board
USG	University System of Georgia

CHAPTER 1

INTRODUCTION, THE PROBLEM

Research Questions

Community colleges provide an important access point for students who want to continue their education and obtain a baccalaureate degree or higher. Students have the opportunity to complete core curricula or the general education component of their education and then transfer to a four-year college or university in many higher education systems around the country. Based on the research, students may or may not transfer and upon transfer may incur challenges to adjusting in a different educational environment. This raises an important question. Can community colleges through transfer agreements with four-year colleges and universities bridge the gap, or rather, help students attain associate degrees and/or persist to achieve baccalaureate degrees?

The challenge to overcome when addressing the question of persistence from a community college to a four-year college or university involves the purpose of community colleges, transfer articulation agreements, environmental culture, and the enforcement and assessment of the transfer function within a given higher education system. The very definition of community college has evolved such that students are instead labeled as learners and the institution's affiliation with learners is characterized as "an ongoing, continuous relationship with participants who are greatly dissimilar in age, motivations, abilities, and interests" (Gleazer, 1984, p. 4).

The focus on the student as learner is characterized in mission statements, strategic plans, and academic objectives of institutions. O'Banion (1997) discusses the transformation of Maricopa Community College through its vision statement. Maricopa Community College placed learning first during its restructuring efforts to address changes in technology, budgetary crises, political and global shifts, and external forces (p. 172).

The community college could be characterized as "a democratic institution which recognizes the importance of the average person having the opportunity to go beyond high school" (O'Connell, 1968, p. 4). If one believes that access and opportunity begin with the community college then these institutions may be described by the following statement: Community colleges were created to democratize both American higher education and the students who came through their open doors (Brint and Karabel, 1989; Franco, 2002; Gleazer, 1994). Community colleges were points of entry into postsecondary education for the advantaged and disadvantaged. This democratization effect, according to Brint and Karabel (1989) "brought students into higher education who would otherwise never have attended" (p. 91). These colleges along with the introduction of the G. I. Bill, or rather, the Servicemembers' Readjustment Act of 1944, increased the chances that a diverse student body would seek and obtain a postsecondary education, especially those students whose status was between high school completion and entering the workplace. After World War II, the community college's philosophy concerning admission for public clientele and greater access for all citizens, "included students who aspired to higher education but did not have the requisite academic

preparation, often despite the award of a high school diploma" (Diener, 1994, p. 7). Likewise, Franco's assertion concerning the cost of higher education lends additional support for the idea of access, for, "as American society becomes increasingly diverse in the decades ahead, and colleges and universities remain prohibitively expensive for low-income students, community colleges will increasingly become the access point to higher education for lower and middle income students" (Franco, 2002, p. 120). Clowes and Levin (1989) articulate that the community college has witnessed a mission drift because of "the gradual shrinkage of the college or academic transfer curriculum as reflected in the declining range of courses offered and the limited availability of sophomore-level courses, especially those with prerequisites" (p. 350). Similarly, Smith's concern about the knowledge economy and the nation's commitment to higher education is evidenced in the statement, "if we are to lead the world into a knowledge century, we must commit to giving all qualified Americans the opportunity to succeed through education, including higher education which gives them the ticket to opportunity" (Smith, 2004, p. 147). Establishing the complexity of such access, caution resonates in the words of Brint and Karabel (1989) on discussions of the community college as the people's college because transfer programs "must be careful in creating a more coherent and rigorous college-parallel curriculum that does not unintentionally reinforce their role as agents of diversion rather than democratization" (p. 229).

Adaptability is a key component of the community college's past, present, and future because "the institution must be able to evolve as communities change with new conditions, demands, or circumstances" (Gleazer, 1984, p. 5). Adaptability resonates

within community college systems because not every community college has, as its immediate focal point within a given community, transferability to a senior college or university. For example, in Hill's (1995) description of tribal colleges and their role in higher education, "the importance of the transfer function varies from college to college. At many, it is of less importance than obtaining a vocational skill and entering the workplace as soon as possible" (p. 36). Across this range of assessments, however, the issue of transfer remains.

If research is to be conducted on the strength and success of transfer articulation agreements, then measures concerning student persistence and grade point average or GPA must be undertaken. Specifically, the question concerning the effect of pre-transfer grade point average on post-transfer grade point average as an indicator of persistence from community colleges to state colleges and universities raises several underlying issues. Some of these issues include the rigor, quality, and minimum student learning outcomes across all sectors within a higher education system. The barometer of institutional foci on specific concepts, theories, and skills with regard to transfer to another institution is another area for study. In other words, additional analysis could be conducted from the institutional perspective on how to structure the curriculum and educational experiences such that students would be prepared to transfer to institutions that offer baccalaureate degrees and simultaneously offer occupational specific knowledge for employment. From the student perspective, further analysis could be conducted to ascertain the impact of socioeconomic variables, an earned associate's degree, acclimation to a new academic environment, availability of financial resources,

and tailored student services on the achievement of student success after transfer. Additionally, the assessment and continuous monitoring of the transfer process, transfer policies and guidelines, enforcement between and among institutions, parallel system and institutional advisement, documented institutional procedures, and aberrations to procedure are all part of determining whether a higher education system is providing uniform support for all of its students.

The National Center for Academic Achievement and Transfer, founded in 1989, funded eighteen institutional partnership grants in order to determine levels of transfer activity between and among institutions and to track transfer student populations. Funded by the Ford Foundation and sponsored by the American Council on Education, the first grants were awarded in 1990 and required that participating institutions strengthen transfer relationships based on an academic model of transfer. According to Eaton (1992), the model went beyond commitments to articulation agreements and student support services, and instead focused on faculty-led changes in teaching and learning. Based on the model's key strategy, "academic collaboration among two-year and four-year faculty at the department, discipline, and programs levels was required in the development of curriculum content and student success expectations" (Eaton, 1996, p. 2). During Phase II of the partnership grants, $25,000 was awarded to two and four-year institutions to "fund efforts that focused on revitalized faculty relationships, shared pedagogy, joint curriculum development, and general education arrangements" (Eaton, 1994, p. 3). The two Georgia institutions that participated in the study were Atlanta Metropolitan College and Georgia State University, both located in Atlanta. The Georgia

partnership grant focused on improving intra-institutional transfer from developmental mathematics courses to college-level mathematics courses between Atlanta Metropolitan College and Georgia State University. The objectives of the partnership were "to analyze the content of four identified mathematics courses, to develop a classroom observation instrument as well as a student and faculty survey for developmental studies mathematics and college algebra courses at both institutions, to develop a "topics in algebra inventory", and to extend the two areas of study—content analysis and observation/interviews—to the next level of math courses. (Eaton, 1994, p. 35) Upon analysis of courses descriptions, textbooks, syllabi, and examinations, faculty members from both institutions determined that narrative cross-comparisons of such courses could not be completed, but rather, numerical scales could best describe content comparisons (Eaton, 1994). Faculty members recommended that students complete at least one mathematics sequence before transferring in order to not disrupt the sequence of instruction and to deter student transfer from occurring during the middle of completing developmental mathematics or algebra.

> Recommendations made upon completion of the project included the need to provide regular opportunities for inter-institutional faculty discussion of discrepancies in course content; expand course assessment methods; involve colleagues in partnership project activities; and encourage faculty to be sensitive to students' obligations outside of class, address these concerns in student advising, and develop institutional policies to provide adequate student support. (Eaton, 1994, p. 37)

A closer scrutiny of the transfer process may further reveal who students are and where they are going within a higher education system. Based on the literature, the demographic makeup of community colleges consists of women, non-traditional students, and racial minorities. According to Kirst and Venzia (2004, p. 255), the American Association of Community Colleges (AACC) indicated that fifty-eight percent of the students were women; thirty percent were racial minorities, and thirty-two percent were thirty years or older. A review of current fast facts as reported by the AACC indicates that community college students constitute the following percentages of undergraduates: forty-six percent of all U.S. undergraduate students, forty-five percent of all first-time freshmen, forty-seven percent of African-American students, and fifty-nine percent of women (American Association of Community Colleges, Fast Facts, 2007).

From a philosophical viewpoint, the study of transferability resonates with postmodern perspectives of organizations "that welcome difference and diversity have multiple functions and processes, and view conflict as an opportunity to engage in organizational dialogue" (Rhoads and Valadez, 1996, p. 192). If organizations focus critically on multiculturalism, then studies of student transferability and persistence will be able to do more than just determine that a representative body of certain groups exist in the educational pipeline. Instead, such studies will also describe the various processes by which representative groups are key parts of partially democratized institutions that may serve as vehicles for social mobility.

Purpose of the Study and Modifications

According to Laanan (2001, p. 8), Cohen and Brawer's (1982) study found that community college transfer students had lower GPAs and higher attrition rates than native students. Likewise, Grubb (1991) found that based on national longitudinal surveys, "students who transferred without an associate's degree were less likely than those with either a vocational or an academic associate's degree to complete a Bachelor of Arts degree" (p. 208). This research will test specific characteristics, such as grade point average and completion of the associate's degree, to project student academic performance at a state or research university upon transfer to such institutions. Although several models are emerging in studies of transfer articulation such as universities offering upper-division courses on community college campuses or including proprietary and private colleges in transfer frameworks, this research included, but did not solely

focus on the "two-plus-two model whereby students complete two years of study at the community college" or students complete a specified number of credit hours and transfer to a four-year college or university to finalize baccalaureate studies (Floyd, 2005, p. 32). Drawing upon the complexity of analyzing transfer student success, this research did not strictly use the two-plus-two model due to the variations in student aspirations and associate degree completions before transferring to a four-year college or university. The research question, "What is the effect of pre-transfer grade point average on post-transfer grade point average as an indicator of persistence from community colleges to state colleges and universities within the University System of Georgia?" poses several issues that are bounded by limitations that are present in the study.

To conduct a pilot study for this investigation, student-level data and specific metrics were sought from the Board of Regents of the University System of Georgia. Based on System protocols, the Office of Institutional Research and Planning explained that student level data would be unavailable due to the Family Educational Rights and Privacy Act of 1974 ("FERPA") requirements concerning the privacy of student records. However, student level data information has been provided to institutional presidents and other studies have engaged in transcript reviews to ascertain the prevalence of specific courses taken pre-transfer or exit from the institution. As a compromise, the University System of Georgia provided pre-published data concerning the total number of transferees into the University System across types of institutions based on Carnegie classification or "sectors" and grade point average ("GPA") and data on students who transferred into the University System from in-state non-university system institutions

and out-of-state institutions. As a result, the pilot study was modified to assess whether pre-transfer GPA accurately predicts performance in terms of post-transfer GPA after one year of successful matriculation. A linear regression equation was generated to predict the relationship between post-GPA and pre-GPA. Upon further examination and review, the Board of Regents of the University System of Georgia consented to provide student level data that removed all student identifier variables and only codes students with an arbitrary sequential number. Information, at the student level, that was made available concerning student transfer included the following variables: gender, ethnicity, credit hours earned, pre-transfer grade point average, post-transfer grade point average, receipt of an associate's degree, and receipt of a bachelor's degree.

Research Question and Issues

For the purposes of this research, the following research questions guided the study: 1) Can pre-transfer grade point average be used to predict post-transfer grade performance? and 2) What is the strength of the predicted relationship?. Grade point average is an important component to the study because transfer students are required to meet minimum system admission standards that include specific grade point averages that are differentiable by institutional sector. In addition, transfer students must complete between thirty and fifty-nine semester credit hours and meet all learning support and college preparatory curriculum (CPC) requirements. The research was bounded by the limitations listed below:

1. The University System does not report on student transfers out of the system to private colleges in-state, Department of Technical and Adult ("DTAE") institutions, or to public universities and colleges out-of-state.

2. The University System reports on student transfers with a limited breakdown according to ethnicity and gender.

3. The University System does not report on reverse student transfers. In other words, the University System does not report or track those students who decide to transfer from a four-year college or university to a community college or technical institution.

4. The University System does not report on type of associate degree received to further inform transfer activity.

5. Institutions, through the transfer process, share students and FTEs, but yet do not share assessment of learning outcomes or track individual student progress.

6. The University System does not have processes in place to monitor and evaluate transfer activities through additional data collection and information exchange.

7. It is not clear how an institution's informal curriculum serves to enable successful transfer to a four-year college or university.

8. System-level data does not differentiate between liberal arts enrollments versus non-liberal arts enrollments when extracting data regarding transferability.

9. Faculty members and faculty advisors are not necessarily involved in the development and maintenance of transfer articulation agreements.

Assumptions

Based on the operations of the University System of Georgia as described in its *Policy Manual* and *Academic Affairs Handbook*, specific guidelines encompass admissions, transfer, and student matriculation at any given system institution. The following assumptions serve as a basis for system and institutional norms associated with student progression within, between, and among institutions:

1. The University System of Georgia's community colleges, otherwise known as two-year colleges, are points of academic access for all students.
2. Community colleges admit students who did not gain admittance to a four-year college or university.
3. According to University System policies, community colleges transfer students to four-year colleges and universities without many barriers in the process.
4. University System of Georgia broad-based policy guidelines provide a foundation for statewide transfer and articulation agreements without the need for more descriptive and in-depth guidelines.
5. University System of Georgia institutional ombudspersons, persons assigned to facilitate the transfer of students between system institutions, provide consistent advisement and transcript review for transfer students both at the sending and receiving institutions.
6. The University System of Georgia's community colleges work under the paradigm, based upon my evaluation, of the Student Success Systems Model:

> a model that assumes that all college employees are actively engaged in a process of meeting the many special needs of community college students such that all community college staff are student advocates, sensitive to the unique characteristics and needs of students and disposed to respond in a helping and caring manner while clearly stating standards and expectations for student performance (O'Banion, 1999, p. 73).

Significance

The dual mission of access and equity are not the only purposes of associate-degree granting, community colleges. Early descriptions of the purposes of community colleges dating back to the junior college movement include "offering two years of work acceptable to colleges and universities, providing opportunities for rounding out general education, preparing for the semi-professions, popularizing higher education, continuing home influences during immaturity, controlling individuals in small groups, and offering opportunities for laboratory work in leadership" (Koos, 1925, pp. 19 – 23).

Cain (1999, p. 90) likens the community college as "trying to be all things to all people" while aiming for the lowest common denominator instead of increasing the level of dormant ability in students. Similarly, Blocker, Plummer, and Richardson (1965) describe the scope of the public community college as being an institution "that has a responsibility to provide developmental curricula for individuals with some potential for education beyond high school" (p. 273). Frye (1992) discusses the community college fit with the educational hierarchy in terms of "the professionalization and certification of

occupations and the emergence of research dominated universities" (p. 121). A 2003 article by the Learning Alliance for Higher Education diffuses the hierarchical dominance of four-year colleges and universities and suggests that based on a pricing model for community colleges and four-year institutions coupled with degree production, "the two-year sector represents a continuation of the taxonomy for four-year institutions with campuses classified as user-friendly and convenient" (p. 48). Such assertions are made in situations where two-year colleges are located in urban areas and offer on-line coursework.

The access aspects of the community college are not the only dimension to such institutions. Brint and Karabel (1989) described an overlooked aspect of community college attendance patterns termed as the diversion effect. The diversion effect of the community college was such that these institutions drew students away from four-year institutions that were more selective and expensive (Brint and Karabel, 1989, p. 91). Franco's summary of Brint and Karabel's critique of the role of community colleges is the stratification of societal roles and the assurance of a vocationally educated blue-collar working class or the "sorting function." In other words, community colleges are viewed as playing an "ambition management function that reduces pressure on American universities to accept students from low socioeconomic backgrounds" (Franco, p. 120).

According to Sanchez and Laanan (1998):

> A common finding in the literature is that individuals who begin at a two-year college rather than a four-year college are significantly less likely to complete a bachelor's degree than their four-year counterparts. Why? These institutions have a high proportion of low-income and under-prepared students and lack residential facilities which provide opportunities for student involvement. The assumption is made that students who achieve less than a baccalaureate degree will find that their education has little positive effect on their current and future earnings potential. (p. 7)

Similarly Weis (1985) reiterates the arguments of Karabel and others that the success of community colleges can be linked to two phenomenon: "a change in the structure of the economy which necessitates a demand for personnel in such areas as data processing and the health semi-professions and an American ideology regarding the equality of opportunity through education" (pp. 34 – 35). However, Weiss (1985) states that community colleges, by their ideology, are part of the tracking system within higher education because they simultaneously provide an opportunity for upward mobility on an individual meritorious basis without addressing issues of distributive justice and differentiation within higher education (p. 135). Alba and Lavin (1981) used City University of New York's open admissions program to test whether community colleges inhibit students from attaining baccalaureate degrees. Based on the outcomes of their research, "students placed in two-year schools did not stay as long in school, earned

fewer credits, and were less likely to earn the baccalaureate than academically similar students in the senior colleges" (p. 235). Zamani's summative research on student persistence (2001, p. 16), states "collegians who begin postsecondary education at community institutions are less likely to earn baccalaureate degrees, particularly African American and Hispanic community college students." Tinto (1988) in his discussion of the reasons for student departure in higher education states that "in the particular case of non-residential two-year colleges, full integration in the life of the institution is not required, but easier persistence early in the college career, may pay for difficulty in persistence later on" (p. 445). The educational, social, and socio-economic mobility of minority groups has been questioned when looking at transfer rates and vocational programs at two-year colleges. According to Brint and Karabel (1989), minority student overrepresentation in community colleges and in vocational tracks within those same institutions presents a politically salient point of concern with regard to low transfer rates among Hispanic and Black students" (p. 137). Is the disparity in persistence rates along gender and ethnic categories prevalent in the University System of Georgia?

If general education forms the basis for not only transfer, but also citizenship, then "general education becomes the launching pad for K-12 and pre-college students, as well as the launching pad for college-ready students as they aspire to university transfer, engaged citizenship, and twenty-first century careers" (Franco, p. 134). According to Townsend (2001), "initially defined as the general education component or first two years of a baccalaureate, transfer education is developing a de facto definition as those courses that transfer to a four-year college, regardless of the nature of the courses" (p.

63). Bers' (2004) description of community colleges indicates that "the primary purpose of community college transfer programs is to provide students with the first two years of undergraduate work and to give them the necessary knowledge and skills to succeed in upper-division coursework. As a result, an indirect indicator of student learning is acceptance at and transfer to a four-year college or university (p. 48).

If the transfer process is able to increase educational opportunity, an underlying assumption is that students will aspire to baccalaureate attainment after receiving an associate's degree or a limited number of core courses. The success of the transfer function can also be attributed to commonalities associated with the core curriculum between and among institutional sectors within a higher education system. This curricular similarity would "replace the existing tendency toward superordinate-subordinate relationships in which the community college is dominated by the four year school" (Eaton, 199b, p. 140). Other measures taken to ensure the success of the transfer function can be found at institutions that have added transfer and university centers to their academic and student affairs offices. Examples such as Townsend's (1999) discussion of Evergreen College and San Jose City College, describe how they "offer transfer students special articulation transfer contracts with four-year institutions. Benefits for students include a waiver of the application fee, early admissions notification, and priority registration after continuing students" (p. 171). The goal of baccalaureate attainment must be a function of the higher education system in order for transfer policies and guidelines to be effective. The transfer process has the paradox of not meeting this goal because "it immobilizes many students, as policies related to the movement of students

between community colleges and four-year colleges/universities are inconsistent or nonexistent" (Zamani, 2001, p. 17). The solidification of transfer contracts with four-year institutions is one step toward institutionalizing the transfer process. Such efforts are important toward thwarting the historical roots of articulation problems incurred by students in the process because according to Brint and Karabel's (1989) description ,junior colleges have been perceived as shock absorbers, sieves, bumpers, lines of defense and moats to insulate four-year universities from the masses. If sustainable change is to occur with regard to transfer processes that focus on student success, "it will result from the pressure that state, legislatures, and planning bodies place on public institutions to coordinate their programs with those of the two-year institutions" (Brint and Karabel, 1989, p. 229).

In preparation for this study, descriptive data were examined from the Southern Regional Education Board (SREB). The Southern Regional Education Board ("SREB") states are the following: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. According to the Southern Regional Education Board (SREB), "more than 24 percent of the white population in the SREB states had at least bachelor's degrees in 2000. The figures were almost 14 percent for the African-American population and a little more than 12 percent for the Hispanic population" (SREB Fact Book, 2003 p. 18). The SREB member institutions have some of the highest percentages of minority student enrollments. According to the SREB, "six of the nation's top 10 states with the highest percentages of minority students are SREB

states: Florida (almost 47 percent); Georgia (more than 45 percent); Louisiana (more than 51 percent); Maryland (almost 47 percent); Mississippi (almost 53 percent); and Texas (58 percent)." Demographic changes involving the increased minority enrollment of secondary students is reflective in postsecondary statistical information. The numbers of public high school graduates are projected to increase "by 12 percent between 2001 and 2011, compared with a national increase of a little more than 11 percent" (SREB Fact Book, 2003, p. 19). According to the SREB Fact Book, at least 78.6 percent of Georgia's adults have a high school diploma or General Equivalency Diploma (GED) certificate. However, only 24.3% of the population holds a bachelor's degree or higher. A further breakdown of the statistics shows that in terms of GED attainment and bachelor's degrees or higher, there are some substantial differences in baccalaureate level degree attainment when comparing the adult population along ethnic groups in the following tables. The statistics for Hispanics as represented in Table 1 concerning educational attainment of the adult population by racial/ethnic group suggest that this group was "double-counted" when census bureau information was extracted. In other words, individuals in this group may have indicated that they were both Hispanic and White or Hispanic and Black and thus the statistics for these groups were over 100% in terms of representation for percent with a high school diploma or GED and percent with a bachelor's degree or higher.

Table 1
Educational Attainment of the Adult Population by Racial/Ethnic Group

	Percent with High School Diploma or GED			Percent with Bachelor's Degree or Higher		
	White	Black	Hispanic	White	Black	Hispanic
SREB States as a Percentage of the nation	96.2	97.7	104.5	93.7	96.5	119.6
Georgia	81.8	72.5	48.5	27.4	15.5	13.6

Source: Southern Regional Education Board Fact Book, 2003, p. 32

Access to higher education is tied directly to admission criteria such that "the transfer function is of paramount importance to maintaining access to higher education by providing the lower-division coursework for a baccalaureate degree for those students who, immediately after high school may be ineligible for admission to a four-year college or university" (Laanan, 2001, p. 5). What is the academic success of students transferring to four-year colleges and research universities? How does this success determine the level of diversity along socioeconomic, ethnic, and gender lines with regard to various baccalaureate degrees and further pursuit of first professional degrees?

Analyses on pre-and-post transfer GPA shows divided results with regard to resultant student outcomes. Based on previous research, post-GPA results may not be reflective of pre-GPA attainment because "for decades, studies have found that transfer students' grades were lower than those earned by upper-division students who had entered the university as freshmen (native students)" (Laanan, 2001, p. 7). However, such an analysis has not been conducted in the University System of Georgia. According to SREB data in 2000, women comprised 58.9% of community college enrollments in

Georgia (Table 2). In addition, at least 33.5% of the total enrollment in the University System, including two-year and four-year institutions, are by African-American students and other minorities (Table 3). The University System of Georgia's reporting schema changed in 1998 to expand reporting of other categories of students labeled as "minority." Based on University System data, 39.5% of community college enrollment is from minority students (Table 4).

Table 2
Enrollment in Community Colleges

	Fall 2000	Percent Women 1994	Percent Women 2000	Percent Total Enrollment In Higher Ed. 1994	Percent Total Enrollment In Higher Ed. 2000
United States	5,948,431	58.0	57.0	38.6	38.9
SREB States	1,839,291	58.8	58.6	38.4	38.3
Georgia	108,597	59.7	58.9	30.0	31.4

Source: Southern Regional Education Board Fact Book, 2003, p. 66

Table 3
Enrollment by Race/Ethnicity Percent of Total in the University System of Georgia Fall 1993 – Fall 2002

Year	Total Enrollment	% of Total Minority	% of Total White
Fall 1993	203,369	24.6	75.4
Fall 1994	204,200	26.2	73.8
Fall 1996	204,332	28.2	71.7
Fall 1998	200,102	29.6	70.4
Fall 2002	233,098	33.5	66.5

*As of Fall 1998, the category "All Other" was expanded to report race/ethnicity in terms of Hispanic, Asian, Native American, and Multi-racial students.
Source: University System of Georgia, Board of Regents, Information Digest, Years 1993 - 1994, 1994 – 1995, 1995 – 1997, 1998 – 1999, and 2002 – 2003

Table 4
Two-year College Enrollment by Race/Ethnicity Percent of Total in the University System of Georgia
Fall 1993 – Fall 2002

Year	Total Enrollment	% of Total Black	% of Total White	% of Total All Other
Fall 1993	47,413	22.5	73.8	3.7
Fall 1994	46,711	23.2	72.8	4.0
Fall 1996	45,252	24.8	69.9	5.3
Fall 1998	36,585	27.5	65.8	6.7
Fall 2002	46,519	29.8	60.5	9.7

*As of Fall 1998, the category "All Other was expanded to report race/ethnicity in terms of Hispanic, Asian, Native American, and Multi-racial.
Source: University System of Georgia, Board of Regents, Information Digest, Years 1993 - 1994, 1994 – 1995, 1995 – 1997, 1998 – 1999, and 2002 – 2003

The diversity of University System of Georgia institutions can be found in examining enrollment across institutions. For example, in Table 5 it can be shown that approximately 57% to 58% of total enrollees are women.

Table 5
Enrollment by Gender as a Percent of Total Enrollment Fall 2001 – Fall 2005, USG

	Percent	Number of Students						
Year	Total % Female	Black	White	All Other	Hispanic	Asian	Native American	Multi-Racial
Fall 2001	57.7%	26%	65.2%	N/R	2%	4.1%	.27%	2.1%
Fall 2002	58.1%	26.5%	64.2%	N/R	2.1%	4.3%	.27%	2.7%
Fall 2005	58.3%	27.5%	62.5%	N/R	2.6%	4.5%	.20%	2.7%

*As of Fall 1998, the category "All Other was expanded to report race/ethnicity in terms of Hispanic, Asian, Native American, and Multi-racial.
Source: University System of Georgia, Board of Regents, Information Digest, Years 2000 – 2001, 2002 – 2003, 2005 - 2006.

If this information is further analyzed to determine associate degree attainment and transfer, then the USG can find out which segments of the student population are acquiring associate degrees and whether they are transferring to complete baccalaureate programs of study. Such action could be used to further inform studies of graduation rates for the entire system of public colleges and universities and further inform which majors students elect with regard to interest, future earnings, and workforce needs. In addition to determining which majors are selected by students that transfer, it would also be of importance to note whether transfer students complete postsecondary studies, apply for admission to graduate programs, and attain professional and graduate level degrees.

Based on University System Degrees Conferred data in Tables 6 and 7 on successive pages, at least 13% of degrees granted are at the associate level and primarily offered in the areas of business, agriculture, nursing, pharmacy, health professions, and liberal/general studies. The liberal/general studies associate degree is the primary source of core curriculum transmission and transfer to the four-year college or university.

Brief Overview of the Study

For the dissertation research, the dependent variable of post-transfer GPA was used along with two independent variables, institution type and pre-transfer GPA. Data were obtained using the fall 2001 to fall 2005 cohort of students entering a two-year college. Those students were identified as first-time freshmen and the data were disaggregated by race/ethnicity and gender. Other data variables that were obtained include cumulative hours earned at the two-year college, and cumulative hours earned at

the receiving institution (four-year college or university). The study used University System of Georgia starting cohort data for all students enrolled in two-year colleges as of fall 2001. The research required the use of SPSS® software to run a linear regression, scatter diagram, and analyze the data for the line of best fit or least square line. Using SPSS to run the linear regression, a scatter diagram was analyzed and the line of best fit or least squares line was used to provide a pictorial of the variables to address the effect of pre-GPA on post-GPA as an indicator of persistence from a community college to a four-year college or research university.

The Influence of Technical Education

Community colleges offer primarily the first two years of a college curriculum for transferring students, associate of science and associate of arts degrees, certificates, and collaborative associate of applied science degrees offered with components of curricula from Department of Technical and Adult Education (DTAE) institutions. DTAE institutions are the public vocational, technical institutions in the state. Such collaborative associate-level degrees are offered on the basis of memoranda of understanding between specific community colleges and DTAE technical colleges or institutes. DTAE is now composed of colleges or institutes depending on an individual institution's accreditation status by the Commission on Colleges (COC) of the Southern Association of Schools (SACS). DTAE institutions primarily offer technical certificates of credit and technical diplomas. From a community college perspective, two-year college articulations with the state's DTAE institutions "offer a variety of services to

their constituents, including vocational-technical education, continuing education, remedial education, community service, and academic transfer preparation. The vocational-technical curriculum was written into the earliest educational plans in most states. Such programs are considered terminal study because students who pursue this route tend not to continue at a four-year institution" (Sanchez and Laanan, 1998, p. 5 – 7). The programs that result in terminal study are often listed as cooperative Associate of Applied Science degrees. The foundation of vocational-technical or occupational programs is to teach students the essential skills, knowledge, and abilities that link to the world of work.

Unlike some other state higher education systems such as those in California, Illinois, Arizona, Maryland, Virginia, and Texas, Georgia does not have a community college system. Post-secondary higher education access is enabled through private universities and colleges, technical institutes and colleges that are part of the Department of Technical and Adult Education (DTAE), and the public colleges and universities that are part of the University System. Therefore, an organizational divide exists between technical programs, associate-level degrees, and baccalaureate and higher degrees offered within the State.

The Community College as a Gateway

Given that the University System promotes a more educated workforce and access to academic excellence as part of its system-wide mission, the community college is important in that the first two years of college are formative years for student persistence

and attainment of the baccalaureate degree. The community college is increasingly becoming the gateway for educational attainment and aspirants to the baccalaureate degree. A review of statistics for the southern region indicates that the access function of community colleges is well represented in terms of the number of students, especially among non-traditional students, women and minorities, who enroll in a community college as their first institution when pursuing postsecondary studies.

According to the SREB, community colleges enrolled 38 percent of all college students, 44 percent of undergraduates and 48 percent of first-time freshmen in the SREB region in 2000. "Ten SREB states, one of which was Georgia, had higher percentages of undergraduate students at community colleges in 2000 than six years earlier" (SREB Fact Book, 2003, p. 51). Likewise, women accounted for almost 59 percent of all students at community colleges in 2000—about the same percentage as in 1994. Almost 48 percent of first-time freshmen were at community colleges in 2000, up from about 44 percent in 1994. The percentage of first-time freshmen at community colleges nationwide "decreased from almost 48 percent in 1994 to almost 45 percent in 2000" (SREB Fact Book, 2003, p. 53). Based on statistical data projections, overall community college enrollment has decreased among first-time freshmen, but the number of women entering postsecondary studies increased when access was provided through the doors of the community college.

The study of transfer rates is a critical piece of scholarship in order to determine the role of community colleges in the University System in studying student pursuit of a baccalaureate degree. Such studies would lend further clarity to the University System's

postsecondary completion program, to the institutional effectiveness of community colleges, and to determine who is entering higher education, at what rate, and whether students persist toward attaining the baccalaureate. Such studies would also lend clarity to the transferability of core courses and the rigor associated with core courses across University System sectors with regard to post-transfer academic assessment.

Notable exceptions to the purpose of this research involve the study of transfer in other directions and with other types of institutions. Transfer does not only mean students in community colleges who are in transfer programs. According to Townsend (2001), transfer may be identified as in Kintzer's (1983) definition of vocational transfer, or Frye's (1992) preparatory terminal programs or reverse transfer students, as part of Townsend's (1999) study of "post-baccalaureate reverse transfer students" (p. 65).

The general education curriculum for all public colleges and universities is mandated by the University System with an allowance for course exchange under the broad umbrella of requirements in essential skills (English composition and mathematics), institutional options, humanities/fine arts, science, mathematics, and technology, social sciences, and courses related to the student's program of study (courses that are prerequisite to major courses). The core curriculum, according to Zeszotarski (1999, pp. 40 – 41), is "the preservation, perpetuation, and transmission of the views and values of important thinkers, writers, scientists, and social leaders. Core curricula can thus accommodate canonical and fundamental works." It is suggested that such a broad, interdisciplinary curriculum will equip students to compete effectively at a University System institution irrespective of its sector or Carnegie classification. Table 6

presents the core curriculum of the University System of Georgia according to specific required areas:

Table 6

Core Curriculum of the University System of Georgia

Policy 303.01 Core Curriculum

The specific courses contained in Areas A through E of an institution's core curriculum are approved by the Council on General Education. Each institution's core curriculum shall consist of 60 semester hours as follows:

Area A	Essential Skills Specific courses in English composition and mathematics	9 semester hours
Area B	Institutional Options Courses that address institution-wide general education outcomes of the institution's choosing	4 – 5 semester hours
Area C	Humanities/Fine Arts Courses that address humanities/fine arts learning outcomes	6 semester hours
Area D	Science, Mathematics, and Technology Courses that address learning outcomes in the sciences, mathematics, and technology	10 – 11 semester hours
Area E	Social Sciences Courses that address learning outcomes in the social sciences	12 semester hours
Area F	Courses Related to the Program of Study Lower division courses related to the discipline(s) of the program of study and courses that are prerequisite to major courses at higher levels	18 semester hours

The University System core curriculum was developed with the intention of allowing institutions flexibility in defining learning outcomes while ensuring transferability between institutions (Board of Regents, Academic Affairs Handbook, Section 2.04). A scholarship program offered in the state of Georgia referred to as the

HOPE Scholarship program requires that students transferring from one HOPE-eligible institution to another HOPE-eligible institution are eligible for continuance of the funds if they continue to meet all eligibility requirements of the scholarship. In addition, with transfer all college credit ours and corresponding grades attempted after high school graduation are counted when determining HOPE Scholarship eligibility (Georgia Student Finance Commission, retrieved as of March 24, 2008). The breadth of knowledge provided by the core curriculum is best described in terms of principles and framework for the core which state that the attainment of general education learning outcomes prepares responsible, effective citizens who adapt constructively to change. Specifically, guidelines associated with the core curriculum principles and framework have an emphasis on serving students by providing a foundation of citizenship, values and skills for all students:

> General education has traditionally focused on oral and written communication, quantitative reasoning and mathematics, studies in culture and society, scientific reasoning, and aesthetic appreciation. Today, general education also assists students in their understanding of technology, information literacy, diversity, and global awareness. In meeting all of these needs, general education provides college students with their best opportunity to experience the breadth of human knowledge and the ways that knowledge in various disciplines is interrelated. In the University System of Georgia, general education programs consist of a group of courses known as the Core Curriculum as well as other courses and co-curricular experiences specific to each institution. The attainment of general

> education learning outcomes prepares responsible, reflective citizens who adapt constructively to change. General education programs impart knowledge, values, skills, and behaviors related to critical thinking and logical problem-solving. General education includes opportunities for interdisciplinary learning and experiences that increase intellectual curiosity, providing the basis for advanced study in the variety of fields offered by today's colleges and universities. (Board of Regents, Academic Affairs Handbook, Section 2.04)

From a sociopolitical standpoint, community colleges, particularly urban institutions, "have become the common school by serving all people and providing the common educational ground on which people from various backgrounds come together to acquire skills for work and citizenship" (Smith and Vellani, 1999, p. 7). According to Wattenbarger and Cage (1974, p. 5) "community colleges have generally had the responsibility of assisting students without clearly defined goals to find their niche, rather than allow them to become disillusioned dropouts haunted by an unnecessary failure experience." However, when responsibility is placed on students, then we view the cooling out function as one in which "students are encouraged to pursue a terminal curriculum marked by remedial course requirements, the assignation of poor grades, and mandatory counseling interviews in which students choose appropriate courses given their records" (Weis, 1985, p. 160). If a cooling out or even drop-out situation will occur due to whether the economic structure of the time can absorb societal ambition, then "the reality of the community college as a place where students may reach undesired destinations should be an open, transparent process and not one shrouded in covertness

in terms of the role higher education plays in social selection" (Brint and Karabel, 1989, p. 231). Clark (1960) states that state universities buffer themselves from public criticism through emphasizing broad admission and simultaneously upholding standards by employing weeding out courses during the first year, sidetracking unpromising students to a general college, or by simply assigning students to a two-year college. The description of this continuing pendulum swing can be described as the "inconsistency between encouragement to achieve and the realities of limited opportunity" (Clark, 1960, p. 569).

Based on research concerning the economic benefits regarding attainment of an associate's degree, Grubb's findings from the Survey of Income and Program Participation (SIPP) suggest that "although individuals with baccalaureate degrees dominate managerial and professional jobs, those who earn an associate's degree double their chances of becoming a professional or manager compared to the chances for someone with a high school diploma" (Sanchez and Laanan, 1998, p. 7). Similarly, Monk-Turner's (1990) research on the occupational achievements of community and four-year college entrants determined that "community college entrants achieved a lower occupational status than four-year college entrants regardless of subsequent educational history" (p. 724). The associate's degree, however, does not figure as prominently as the baccalaureate degree in literature concerning the economic benefits attributed to sub-baccalaureate education as reflected in federal reports and information from the U.S. census bureau whereby educational attainment is classified as "not a high school graduate, high school graduate, some college, baccalaureate, master's, doctoral, or

professional degree completion" (Sanchez and Laanan, 1998, p. 6). Likewise, Adelman (1992) describes student aspiration information contained in the NLS-72 database as baffling because "no one is aware of the associate's degree or how to interpret it; however, in contrast the bachelor's degree is a culturally visible symbol with significant power in public policy" (p. 26). The gateway or access point quality of two-year and/or community colleges requires scrutiny to determine if students entering such institutions persist and obtain a baccalaureate degree.

Standards of quality and excellence in the community college have been assessed in terms of "the number of courses and programs that fit senior colleges, the number of students who make it by transferring to senior colleges, and how well the graduates of community colleges do after arriving at senior institutions" (Palinchak, 1973, p. 137). To enhance the stature of community colleges in the educational hierarchy, Wilson (1996) suggests that "students must not only transfer in large numbers from these institutions but also must succeed at senior institutions that receive them. In a further link to this process, more baccalaureate minority graduates also set the stage for more minority administrators" (p. 96).

Persistence and transfer shock, or the temporary dip in a student's academic performance (Laanan, 2001, p. 5), need to be assessed in the University System based on geographical location and ethnic group. Transfer shock from an institutional perspective has deep roots in the articulation models used by a system or group of institutions which has ramifications for students. Brint and Karabel (1989) describe community colleges as shock absorbers or lines of defense that reduce the mobility of minority and working-

class students when it comes to strengthening articulation agreements (p. 229). Often two-year and/or community colleges are critical pieces of enhancing diversity in the college classroom further through transfer enrollments to research and state universities. Although community colleges enroll a substantial number of students each year, they are described as the "hidden institutions" of American higher education when they are compared to their hierarchical counterparts in terms of tuition costs, admission requirements, high-profile sports, affirmative action, consultants and discipline experts, teaching hospital and allied health areas, and innovative research (Quigley and Bailey, 2003, p. 65). If the core curriculum, regardless of completion of an associate's degree, is imperative to course transfer and thereby student transfer from a community college to a baccalaureate-degree granting institution or higher, then the concept of transfer needs to be defined and revisited from a University System perspective.

Townsend (2002, p. 16) in summarizing Adelman's study of college attendance patterns states that "not all studies looking at student transfer rates use receipt of the associate degree as a criterion for inclusion or count high school students who are concurrently enrolled in collegiate coursework." Varying definitions of transfer exist. Transfer, according to Castaneda's review of existing literature and use of the National Transfer Assembly's definition is:

> All students entering the community college in a given year who have no prior college experience and who complete at least twelve college-credit units, divided into the number of that group who take one or more classes at an in-state, public university within four years. (Castaneda, 2002, p. 441)

The University System of Georgia defines a transfer student as the following:

> One who has earned 30 or more semester hours of college credit. For admission purposes, the transfer student's admissibility is determined by his/her cumulative transfer GPA based on all normally transferable attempted hours from all post-secondary institutions previously attended as calculated by the receiving institution. A transfer student must meet the transfer GPA requirements of the sector and any additional institutional requirements. A transfer student is not required to submit a high school transcript, SAT scores, or ACT scores. (University System of Georgia, Academic Affairs Handbook)

The following are definitions used by the University System of Georgia when discussing transfer student guidelines:

Definitions Used by the University System of Georgia

Transfer Hours Attempted – any hour that would be normally transferred including those in which the student earned a grade of D or F grades. Cumulative transfer hours attempted excludes "institutional credit" hours, CPC deficiency makeup courses, and vocational courses.

Transfer Hours Earned – any hour that would be transferable excluding grades of F and excluding grades of D if not transferable to the institution. Transfer hours earned excludes "institutional credit" hours, such as Learning Support (LS) and College Preparatory Curriculum (CPC) deficiency makeup courses.

Transfer GPA – The cumulative transfer GPA is based on all attempted credit hours at postsecondary institutions previously attended from which a student's

institution normally accepts credit. Attempted credit hours include all transferable hours plus all attempted but unearned hours at regionally accredited institutions in courses applicable to the transfer program at the receiving institution. The transfer GPA is equal to the total number of quality points earned at previous institutions divided by the total number of credit hours attempted. Transfer GPA excludes institutional credit hours, CPC deficiency makeup hours, and vocational courses.

Unlike the definitions used above to describe individual students, transfer rate for the University System is not clearly evident. Townsend (2002, p. 15) cites the number of definitions used in the literature to describe transfer that include "comparing the number of possible transfers to actual transfers or comparing the number of transfers to total headcount, full-time equivalent (FTE), or number of entering high school students." To that end, the following additional terms can be used to describe transfer student behavior from the literature.

Other Definitions Associated with Transfer Curricula, Outcomes, and Student Behavior

Articulation – The process of equating courses from one institution to another institution in order for students to earn a degree.

Associate of Arts and Associate of Science (AA and AS) Degrees – Associate of Arts and Associate of Science degrees are typically transfer degrees and have similar general education requirements as bachelor's degrees.

Community College – an institution that is accredited (or undergoing accreditation) by one of the six regional accrediting bodies and primarily offers the associate degree as the highest degree. A community college may also be a campus that offers the associate degree as the highest award but is part of a

regionally accredited, baccalaureate degree-granting institution (American Association of Community Colleges, 2001).

Heating Up – Term coined by Zwerling (1976), describes when a student enters the community college with no intention of transferring to a four-year institution, becomes interested in continuing his or her education, and then decides to transfer.

Cooling Out – Term described by Clark (1960) to refer to community colleges lowering the aspirations of students who lack the ability to complete college-level work.

Early Transfer – Term used by Cejda and Kaylor (2001, p. 623) to describe students who transfer without completion of the associate degree or its equivalent, 60 hours.

Native Students – Students who enter a four-year college or university as freshmen versus transferees (Laanan, 2001; Cohen and Brawer, 1989).

Receiving Institution – The institution where courses will be transferred and accepted.

Sending Institution – The institution where courses were taken.

Lower-division Courses – Typically 1000 and 2000 numbered courses for the University System of Georgia taken during the first two years of college work.

Upper-division Courses – Typically 3000 or 4000 numbered courses for the University System of Georgia taken during the last two years of college work.

Time of Transfer – Term used by Cejda and Kaylor (2001, p. 623) to refer to the number of credit hours completed at the community college before transfer.

Keeping Students Hot – Term used by Cejda and Kaylor (2001) describing the fact that community colleges face the challenge of maintaining the educational interest of the student who enters intending to transfer to a baccalaureate institution.

Transfer Shock – Term used by Laanan (2001, p. 5) to characterize the temporary dip in transfer students' academic performance or grade point average in the first or second semester after transferring.

Transfer Ecstasy – Term used by Laanan (2001, p. 7) to characterize an increase in grade point average after transfer.

Concerns About Transfer Rates

Castaneda suggests that the issue of transfer has recently been questioned altogether when Fryer and Turner (1990) and Kinnin et. al. (1998) found that patterns of enrollment suggest students switch between different types of institutions or take courses at community colleges while being counted officially as students of universities at the home institution. Townsend's (2002) synthesis and analysis of the literature on transfer rates describes an overall precipitous decline in transfer from community college to four-year college, a lack of defining the acceptable minima and maxima levels for transfer, and institutions with a myopic view of transfer that does not encompass students outside of

community college transfer programs. Seybert's (2002) review of existing literature on assessing the transfer function includes Alfred, Ewell, Hudgins, and McClenney's (1999) core indicators: "the number of students who transfer in a given year, transfer rate (the percentage of an identified cohort of students who transfer), and student academic performance after transfer" (p. 57).

The possibility of transfer and persistence from the community college to a four-year college or university has been analyzed by Pascarella and Terenzini. According to their review of community versus four-year institutions, inequalities exist between the two types of colleges, and students entering a community college are less likely to complete an associate's degree and transfer to a four-year university. Based on their summaries of key research findings:

> The research is clear about the socioeconomic and other advantages enjoyed by community college graduates over people with only a high school diploma. But the evidence also consistently indicates that the advantages are even greater for baccalaureate degree holders when compared with community college graduates. So great are the differences that three decades ago Clark (1960) argued that community colleges, despite their many positive and facilitative functions, can also serve to "cool out" high-aspiration but low-achieving and/or low-socioeconomic-status students, discouraging continued enrollment and reducing the likelihood that community students would enjoy educational benefits equal to those of four-year college graduates. More recently, Karabel (1972, 1986; Brint & Karabel, 1989) and Astin (1977a) have commented on the paradox of the

> proliferation of public community colleges and the evidence that because of demonstrably lower persistence and baccalaureate degree attainment rates, community colleges may not really serve well the interests of students aspiring to a bachelor's degree and to the careers that require it. (Pascarella and Terenzini, 1991, pp. 640 – 641)

Cohen and Brawer (1987, pp. 96 – 97) critique the role of state and community colleges in the transfer function by posing the question "Why do more students not transfer?" In their critique, Cohen and Brawer explain that students do not transfer because of the following reasons:

> More students do not transfer because their academic backgrounds, course-taking patterns, and involvement in the institution tend to be different from those of their freshman counterparts who begin collegiate studies at universities. Furthermore, the universities typically cost more, are further from home, do not offer as many courses at night, and may not welcome students who work full-time and want to take classes on a part-time basis. Institutional characteristics include various problems in articulating courses with senior institutions and the practice of allowing students to take courses out of sequence or that they have not met the prerequisites. (Cohen and Brawer, 1987, p, 96)

The diversity of institutions is a key factor in this analysis since a disproportionate number of minority students attend two-year or community colleges. The disparity in the transfer function is seemingly further compounded by race. According to McGrath and Spear (1991, p. 39), the number of minority students is described as follows:

> The decline has been most pronounced for minority students since more than forty percent of all Black college students and more than fifty percent of all Hispanic college students are enrolled in community colleges, this represents a very important decline in real opportunity for those groups.

Based on the literature, senior-level institutions and community colleges need to work in partnership to create transfer opportunities. Historically, the articulation agreements undergirding transfer principles have been described as the "sensitive" issues that states with community colleges confront. According to Morsch (1976), mechanisms employed to address articulation agreements included "articulation conferences to analyze, subject-by-subject standards and acceptability; bilateral arrangements between sending and receiving institutions; and lastly, enhancement of the acceptability of the Associate of Applied Science technical degrees through comparability of lower division coursework in the degree" (p. 13). In a summary of successful articulation programs and transfer centers around the country, Zamani (2001, pp. 20 – 21) cites the development of transfer centers at Los Angeles community colleges, the Illinois Board of Higher Education, and the University of California Davis as providers of outreach programs and transfer opportunities for students. These postsecondary agencies developed systems for the tracking of student data to ensure that students who aspire to obtain a baccalaureate degree have the resources, mentoring, and pedagogical content needed to successfully meet academic readiness requirements. According to Zamani (2001, p. 22), "the responsibility for successful transfer should not lie solely with the community college sector." Critics indicate that the transfer function of community colleges produces

diminishing returns. Alba and Lanvin (1981) tracked students from the City University of New York's open admissions program "to determine whether two-year colleges function as a separate track within higher education and found that community colleges deter students from attaining their educational ambitions, but the effect is modest and varies by institution" (p. 223). Results of Alba and Lanvin's study also revealed that student persistence seemed to crystallize toward the end of the second year with third year credit gap being universal; however, those students who did transfer did well in the senior colleges (1981, pp. 233 – 234). Similarly, Lee and Frank (1990), using a path analysis design involving the High School and Beyond data, investigated the importance of social and academic factors on the probability of transfer to a four-year college for a random sample of 2,500 students who entered a community college within two years of high school graduation in 1980 (p. 178). The results of their analysis concluded that "it was social disadvantage that impeded community college students from transferring through the effect of social class on virtually all academic behaviors associated with transfer (Lee and Frank, 1990, p. 191)." The preparation of students in the high school years, according to Lee and Frank (1990, p. 178), "perpetuates the fact that more advanced students transfer and leads to further stratification in higher education." Conversely, Lee, Mackie-Lewis, and Marks (1993), investigated the probability of attaining a baccalaureate degree for students who enrolled in community college after high school graduation and transferred with students who entered a four-year institution immediately after high school (p. 80). Using a random sample of 422 students from the High School and Beyond Class of 1980 data, it was found that the probability of attaining

a baccalaureate degree in six years was equivalent for the two groups. Research conducted by Lee et. al. (1993) was based only on "those students who were successful in making the transfer (p. 104)." Additional explanations for the equivalent transfer results were summed by Lee et. al. (1993) by stating that "community colleges did not act as inhibitors to academic persistence for the relatively able and motivated students who use these institutions as less expensive alternative routes to further postsecondary education" (p. 105).

Profiles of Community Colleges

Nationally in 1994, according to Cohen and Brawer, at least twenty-two states had policies regarding associate degree transfers with thirteen mandated by state boards, four mandated by legislatures and five voluntary (2003, p. 329). Articulation and transfer policies can be strengthened when they are tied to occupationally-specific programs in teacher education, agriculture, engineering technology, nursing and other allied health fields.

Based on information from the National Profiles of Community Colleges concerning estimated transfer rates in Table 8, statistical reports indicate that approximately half of the students sampled earn 12 or more credits before transfer to a four-year institution. Only one-fourth of the students sampled, however, transfer to a four-year institution within four years.

Table 7

Estimated Transfer Rate of Freshmen from Community Colleges to Four-Year Institutions: Entering 1984 to 1987***

	1984	1985	1986	1987
Percent Earning 12 or more credits within four years	50.5%	46.7%	46.7%	46.9%
Percent Transferring Within Four Years	23.7%	23.6%	23.4%	22.6%

Source: National Profile of Community Colleges: Trends & Statistics, 1995 – 1996, p. 43, Washington, DC: Community College Press (as reported in New Directions for Community Colleges, Vol. 86, 1994)

Notes: *Transfer rates are for first time students who earned twelve or more credits in the community college and earned one or more credits in a four-year institution within four years. **Many community college students do not intend to transfer, and this is only one method of measuring the rate of those who do.

Based on information from the National Profile of Community Colleges, at least 37% of the freshman cohort of the 1989 – 1999 academic year aspired to attain a bachelor's degree as provided in Table 8 Less than 10% of the students indicated that a professional degree was a goal upon completion of post-secondary studies.

Table 8

Highest Educational Aspirations of First-time Freshmen and Sophomores by Type and Control of Institution (1989 – 90)
First-time Freshmen and Sophomores

Type and Control of Institution	Trade School	Less Than 2 Yrs. College	2 or More Years College	Bachelor's Degree	Master's Degree	PhD or Prof. Degree
First-time Freshmen						
Public Community College	7.33%	3.35%	17.10%	36.58%	24.58%	5.86%
Private Community College	6.33%	2.25%	14.47%	43.58%	24.82%	7.29%
Public 4-Yr. No PhD	2.05%	0.82%	3.25%	39.06%	40.26%	13.19%
Private 4-Yr. No PhD	1.05%	0.67%	2.74%	33.17%	42.88%	18.12%
Public 4-Yr. PhD	0.85%	0.17%	1.83%	31.50%	44.80%	19.23%
Private 4Yr. PhD	0.49%	0.43%	0.94%	21.19%	45.93%	28.62%
Sophomores						
Public Community College	2.43%	1.02%	9.76%	34.61%	27.97%	7.34%
Private Community College	3.21%	1.11%	8.61%	33.82%	20.66%	6.10%
Public 4-Yr. No PhD	0.56%	0.22%	1.31%	29.74%	39.06%	10.32%
Private 4-Yr. No PhD	0.41%	0.05%	1.43%	20.70%	34.89%	16.37%
Public 4-Yr. PhD	0.21%	0.00%	1.00%	23.63%	40.27%	15.20%
Private 4Yr. PhD	0.40%	0.222%	0.95%	12.69%	37.58%	23.83%

Source: National Profile of Community Colleges: Trends & Statistics, 1995 – 1996, p. 42, Washington, DC: Community College Press (as reported in NCES NPSAS:90 Undergraduate Table Generation System)
Note: Numbers across do not add to 100% non-responders not listed.

Based on national profiles, students attend community colleges for different reasons. Some students enroll in order to transfer to a four-year institution, while others seek to become prepared for workforce entry. Regardless of the reasons, a reflective look at associate degrees conferred in the early 1990s in Table 9 indicates that a large number of women and African-Americans enroll in and complete associate degrees. The largest group of individuals, as represented in the table below are white, non-Hispanic males.

Table 9

Associate Degrees Conferred by Race/Ethnicity, All Institutions of Higher Education: 1991-1992

Race/Ethnicity	Male	Female	Total
White Non-Hispanic	155,557	232,481	388,038
Black Non-Hispanic	13,559	25,114	38,673
Hispanic	10,890	15,228	26,118
Asian/Pacific Islander	6,897	8,261	15,158
Native American/Alaskan Native	1,420	2,453	3,873
Non-resident Alien	3,418	4,571	7,989
Race/Ethnicity Unknown	13,078	6,536	19,614
Total Minority	32,766	51,056	83,822
Grand Total	207,481	296,750	504,231

Source: National Profile of Community Colleges: Trends & Statistics, 1995 – 1996, p. 38, Washington, DC: Community College Press.
Notes: Includes four-year institutions; grand total includes 4,768 associate degree recipients whose race or ethnicity was not reported

Transfer Guidelines within the University System

To aid the transfer function of students within and outside of the University System, transfer policies were adopted by the University System of Georgia Board of Regents (1996) and incorporated in the University System's *Academic Affairs Handbook* (effective 1998). The *Academic Affairs Handbook* is used as the prescriptive authority on the implementation of Board Policy and its associated guidelines. According to the University System, a transfer student for admissions purposes "is a student who has earned thirty or more semester hours of college credit. The transfer student's admissibility is determined by his/her cumulative transfer GPA based on all normally transferable attempted hours from all post-secondary institutions previously attended as

calculated by the receiving institution" (University System of Georgia, Academic Affairs Handbook, 2004). In addition, the transfer grade point average is "based on all attempted credit hours at postsecondary institutions previously attended from which a student's institution normally accepts credit" (University System of Georgia, Academic Affairs Handbook, 2004). The University System has prescriptive guidelines for the definition of transfer students and grade point average as well as transfer hours attempted and earned based on a student's admission classification (see Definitions Used by the University System of Georgia).

Use of the Study and Implications of the Pilot Study

The term "transfer" has several different connotations when collecting data on students. Accurate data coding would need to ensure that student profiles are analyzed by last college attended and number of credit hours obtained at a specific institution. Periodic surveys and careful scrutiny of student applications may also confirm whether students are transfer or transient students, those students who attempt to enroll at more than one institution in order to develop a flexible curriculum that meets personal demands and degree expectations. Student transfer to a four-year college or university is an individual choice. Therefore, it cannot be assumed that every student transferring within the University System will inevitably attend a public, baccalaureate degree-granting institution.

As indicated earlier in the purpose, this study used data provided by the Board of Regents. The specific report from which data points were derived for the pilot study was

the Summary Transfer Feedback Report dated July 8, 2003 that was provided to all system chief academic officers, the Chancellor's cabinet, registrars and directors of admissions, directors of institutional research, and System office academic affairs staff. Grade point averages, pre-and-post transfer for all out-of state and in-state non-University System institutions were analyzed to determine their relationship to future performance. Such factors can be documented by the transferring institution before and during the process of formal transfer and acceptance of the student at another institution. Similar to Crejda et. al.'s (1998) analysis of Graham & Hughes' 1994 study of community college students' academic performance at a university, this study was undertaken to determine if a predictive relationship occurs between past grade performance on future grade point average. A pilot study was completed using transfer activity from University System reports for academic year 2001 to 2002. Based on the pilot study, it was determined that student level data points were needed to test the relationship of grade point averages between one another. In addition, a revised data set needed to include descriptive characteristics of the students, time of degree completion, type of degree completed, and level of degree attained. It was further determined that the linkage of student information between a two-year college and four-year college or university was needed to ascertain progress toward degree and credit hours earned at various intervals along students' matriculation through postsecondary studies. Lastly, the tracking and accuracy of data reporting through the office of admissions, registrar, and other systems is important to document student progress and develop preliminary indicators of where students exit

postsecondary education in order to further study both why students leave higher education and persist toward degree attainment.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter takes an in-depth look at the literature concerning community colleges at both the national and state levels. Information concerning their establishment and mission is provided along with a demographic and characteristic overview. Theories and models of student action are described in order to better understand the underlying framework that supports student persistence. This chapter also describes state level articulation models of transfer and costs associated with student matriculation behaviors.

Community colleges developed through legislative action, community need and demand, local and state expansion of institutions of higher education, public calls for enhanced opportunities and equality, and the legitimization of the educational experience in preparation for a vocation and workforce development. In terms of social contexts contributing to the formation of these colleges, it has been suggested that community colleges developed as a result of elite universities distancing themselves from students who did not meet their admission criteria or standards. Other social explanations for community college development include their use as institutions that could stratify and further categorize students according to profession and social class. According to Brint and Karabel (In Eds. Townsend and Bragg, 2006), "the ladders of opportunity created by the new educational system helped the United States retain its identity as a land of unparalleled opportunities for individual advancement" (p. 64).

According to Townsend and Twombly (2001, p. 4), community colleges' primary contribution to the educational experience has been to provide access to postsecondary studies for students who would not otherwise have an opportunity to participate in higher education. Compulsory school attendance enhanced opportunities for working class youth to attend school longer and graduate from high school such that "by 1890, twenty-seven states had passed such laws, and by 1918 all forty-eight states then in the Union had enacted such legislation" (Urban & Wagoner, 2004, p. 171). With the expansion of grades in high school and compulsory education, many state school systems began offering a 13th and 14th year of high school.

Historical Beginnings of Community Colleges

Advocacy for utilitarian and general curriculum programs helped fuel the development of manual training schools. According to Urban & Wagoner, in 1879 the Manual Training School at Washington University, opened by Calvin Woodward, provided a three-year secondary program that divided the curriculum equally between mental and manual labor (2004, p. 187). The first of its kind, the Manual Training School offered academic subjects such as mathematics, science, language, and history along with industrial subjects such as carpentry, woodworking, mechanical drawing, and metal working (Urban &Wagoner, 2004, p. 187). These historical beginnings have links to the community through high schools and a need to have a trained workforce to support continued economic growth in communities. The development of community colleges was born out of conflict and influence by other institutions. Pedersen (1997) described

the community college as a conflicted entity, or rather, "a silent adjunct in a larger ideological struggle, that did not develop in isolation, but rather was influenced by those institutions upon which it initially depended for either its day-to-day existence or its legitimacy" (p. 501). The institutions that the community college depended upon were the high schools, universities, and sponsoring communities. Models for the establishment of community colleges can be traced to the establishment of elementary and secondary schools in terms of attendance patterns, admission criteria, and fund allocations. Considered a young member of the educational family, community colleges were defined as the first two years of a college education. Instead of providing students with an opportunity to move toward the latter years of college, and perhaps graduate study, the colleges engaged in remediation for secondary preparation and the social and emotional aspects of early college. According to Urban & Wagoner, (2004, p. 239), "during the 1920s, the junior college became separated from specific colleges and universities; began serving a variety of remedial functions for members of the middle class and above; served as a retreat where those who had difficulty with collegiate studies could regroup; and functioned as a way station, where the less mature could grow socially and emotionally while trying to improve their study habits."

The beginnings of the junior college started in Chicago and Illinois as continuations of high school (Thornton, 1972; Urban & Wagoner, 2004). According to Thornton (1972, p. 48), President William Rainey Harper, in 1892, separated the first and last two years of the University of Chicago into the academic college and university college later known as the junior college and senior college, respectively. President

Rainey is also credited with influencing the establishment of Lewis Institute in Chicago (1896), Bradley Polytechnic Institute in Peoria (1897), and Joliet Junior College in Illinois (1901) (Thornton, 1972, p. 48). The term, "community college," was formalized by the President's Commission on Higher Education in 1947, often referred to as the Truman Commission. It was not until the 1960s that the term and institutions began to realize expansion and growth (Levin, 2001). Broadly, the administration of a community college may reside at the institutional, local or state level. The control of community colleges may be determined by "the organizational plan of the state based on state laws and regulations; however, when a state or local unit operates more than one institution, each college may have its own advisory committee with substantial recommending powers" (Zoglin, 1976, p. 25).

History of Two-Year Colleges in Georgia

Similar to the development of community colleges in other parts of the country, in the state of Georgia, the earliest beginnings of community colleges began as extensions of high schools that did not offer upper division courses. Abraham Baldwin Agricultural College, Middle Georgia College, and South Georgia College were initially established before the 1960s during a time of such inventions as radar, airplanes, hearing aids, and talking movies. Additional colleges were established during the 1960s around the time of the Korean War, Vietnam War, and U.S. astronauts landing on the moon. Two-year colleges expanded and redefined themselves in the 1960s and early 1970s as junior colleges under the direction of the Board of Regents with the support of local

communities for site location and initial facilities. Community support in the form of bond issuances enabled the purchase of land and construction of several of these colleges. The reason for such expansion in the 1960s can be summed up with the following quote by Edmund Gleazer in 1974, then executive director of the American Association of Junior Colleges, according to Witt, Wattenbarger, Gollattscheck, and Suppiger (1994):

> There were more and more people who wanted to go to college. The number of Americans between the ages of 14 and 24 increased by 52% during the 1960s, more than five times the rate of increase of the preceding three decades. And it was this increase in the young adult age group coupled with national social goals and individual aspirations that led to the greatest decade of expansion in the history of post-secondary education. The community college was a significant part of that expansion. (p. 186)

Table 10 provides a list of the colleges and their dates of establishment along with changes in name. Two community colleges, Bainbridge College and Coastal Georgia Community College, maintain a vocational-technical unit in cooperation with the State Board of Technical and Adult Education (DTAE).

Table 10

University System Two-Year Colleges and Dates of Establishment

Institution (Current Name)	Founding Institutional Name and Revisions	Year Est.
Abraham Baldwin Agricultural College (1933)	Second District A&M School (1908) South Georgia A&M College (1924) Georgia State College for Men (1929)	1908
Atlanta Metropolitan College (1988)	Atlanta Junior College Authorization by the Board of Regents Financial Plan authorized by the Atlanta School Board Construction confirmed in principle Phase I building construction Renamed Atlanta Metropolitan College	1965 1971 1972 1973 1988
Bainbridge College	Bainbridge College (1970)	1970
Coastal Georgia Community College	Brunswick College (1961)	1961
Darton College (1987)	Albany Junior College (1963)	1963
East Georgia College	Founded in 1971 Enrolled first students in 1973	1971
Georgia Highlands College (2005)	Floyd Junior College (1970) Floyd College (1991)	1970
Gainesville State College (2005)	Gainesville College (1966) Gainesville State College (2005)	1966
Georgia Perimeter College (1997)	DeKalb College - Clarkston (local board control) DeKalb College – Decatur DeKalb College – Dunwoody 1986 – DeKalb Co. relinquishes support	1964 1972 1979
Gordon College	Frame house to teach the classics built in 1832 Barnesville Male and Female High School (1852) Gordon Institute (1872) Gordon High School and Junior College (1933) Gordon Junior College (1972) – enters USG System	1972

Table 10

University System Two-Year Colleges and Dates of Establishment

(Continued)

Middle Georgia College	College of the New Ebenezer Association (1884) - Building constructed 1885 – 1886 Instruction began – 1887 Agricultural and Mechanical School for the 12th District (1917) Middle Georgia Agricultural and Mechanical Junior College (1927) Middle Georgia College (1929) – 9-member trustee board Middle Georgia College (1931) – enters USG System	1931
South Georgia College	Founded in 1906 as the 11th District A&M School	1906
Waycross College	Originally approved (1970) Site and Bond Issue (1973) Waycross Junior College (1975) Waycross College (1987)	1970

Sources: http://www.abac.edu/president/mission.html ABAC Mission Statement
http://www.bainbridge.edu/aboutbc/gen_info/tim_lin.htm, Bainbridge College Historical Timeline
http://www.cgcc.edu/about/history.html, Coastal Georgia Community College History
http://online.darton.edu/About_darton.htm, Darton College, About Darton College
http://www.usg.edu/inst/egc/, East Georgia College, Institution Information
http://www.gc.peachnet.edu/www/regadm/catalog/2000-2002/college-i.pdf Gainesville College History
http://www.highlands.edu/about/index.htm, Georgia Highlands College
http://www.gpc.edu/News_and_Information/mission.php3, Georgia Perimeter College History
http://www.gdn.edu/aboutgordon/tour/history.asp, Gordon College History
http://www.mgc.edu/about/history.cfm, Middle Georgia College History
http://www.sga.edu/SGC1/Tour/facts.html, South Georgia College Fast Facts
http://www.waycross.edu/about_wc.htm, Waycross College, The College

The roles of community colleges have changed and revised to fit their collegial nature within the higher education system and to respond to external environmental factors. Historically, the junior college which later evolved into the community college in some cases, had three primary functions: "1) transfer education or the offering of two years of work acceptable to colleges and universities, 2) the provision of opportunities for rounding out general education, and 3) terminal education or preparation for occupations" (Townsend, 2001, pp. 63 – 64.) Likewise, O'Connell's (1985) definition of a community college includes the following characteristics: multi-purpose institution with a transfer or liberal arts program and specialized career or terminal programs; inexpensive, non-residential, institutions with open-admission or less selective admission policies; smaller institutions with a homogenous student base that serve the community and are the focal point of the region. According to Levin (2001, p. 6), in the 1990s the training role became more pronounced but in the 1980s and 1990s colleges gained a much more significant economic function; however, globalization and the commodification of education and training was identified as a key thrust in the 1990s. Levin (2001, p. 170) discusses the new mission of the community college to encompass "curricular outputs in the form of outcomes with the concept of a learning college with an economic betterment emphasis."

Description of the University System of Georgia and State College Sector Expansion

The University System of Georgia is composed of thirty-five public colleges and universities in the state of Georgia. "The University System of Georgia's Board of Regents was created in 1931 as a part of a reorganization of Georgia's state government. With this act, public higher education in Georgia was unified for the first time under a single governing and management authority. The governor appoints members to the Board, who each serve seven years" (University System of Georgia, Board of Regents, About the Board as of July 24, 2004). Publicly funded institutions under the University System and DTAE have an oversight board. In particular, the University System has a board of sixteen members: "five from the state-at-large and one from each of the eleven congressional districts. Members are appointed by the Governor and confirmed by the Senate to serve seven-year terms of office" (USG, Information Digest, 2000 – 2001, p. 5). The Board of Regents renders decisions based on recommendations offered by specific units of the University System. Responsibility for decisions concerning the transfer of students between institutions and developing frameworks for tracking, ensuring equity and access, and for follow-up assessment reside within the Division of Academic Affairs. The institutions in the System are categorized hierarchically by sectors representing research universities, regional universities, state colleges (e.g., those institutions that primarily offer associate degrees, serve as a transfer institution, and offer select, workforce specific baccalaureate degrees), state universities, and two-year or community colleges.

For the purposes of this study, the two state colleges, Dalton State College and Macon State College, were included with data concerning community colleges because they offer a few, specialized baccalaureate degree programs. Community colleges, as the term is used, are commonly referred to as two-year colleges in the state of Georgia. Collectively, the state's thirty-five public higher education institutions are comprised of four research universities, two regional universities, thirteen state universities, two state colleges, and thirteen community colleges. Initially, the University System of Georgia only had two state colleges, but steadily through revised mission and sector growth as well as the development of new, emergent baccalaureate degrees, the number of two-year colleges decreased while the number of state colleges increased to six institutions over time. The following details are provided as a brief recap of that history.

As of October 2005, the number of state colleges increased from two to four with the sector change and renaming of Gainesville College to Gainesville State College and the addition of Georgia Gwinnett College, a relatively new institution that did not independently offer a full range of academic programs until academic year 2007. Georgia Gwinnet College, although considered a state college, was approved by the Board of Regents in November 2005 to initially offer seven baccalaureate programs (Board of Regents, Committee on Academic Affairs Agenda and Minutes, November 2005). The institution, as yet, has not developed associate-level degree programs. In addition, Middle Georgia College, as of May 2006, was approved to offer two baccalaureate programs and revise its institutional mission to move beyond the two-year college sector (Board of Regents, Committee on Academic Affairs Agenda and Minutes,

May 2006). Lastly, Abraham Baldwin Agricultural College was approved to offer two baccalaureate programs along with a revised mission statement as of May 2006 (Board of Regents, Committee on Academic Affairs Agenda and Minutes, May 2006). Such changes in institutional classification are described by Levin (2001, p. 180) as the globalization of community colleges in which they "function more on a model compatible with business norms: a fluid organization, with little reverence for academic traditions, little evidence of a dominant professional class of faculty and core evidence of a professional managerial class, greater reliance upon technology and less upon full-time labor." These business norms are often reflected in the types of baccalaureate programs offered. Brint and Karabel (1989) describe this business domination model as "curricular offerings that reflect the imprint of powerful business interests that prefer programs that will provide them with technically trained workers" (p. 13).

Initially in the late 1980s and early 1990s, the University System was divided into three sectors: universities, senior colleges, and two-year colleges. During this time, fifteen two-year colleges were part of the two-year college sector, fifteen institutions represented the senior college sector, and four institutions represented the university sector. By 1996 with the change of administrative structure of the University System administrative office, a new chancellor, and a new strategic plan, the sector representation of public institutions changed as well. The result was the following hierarchy of institutions: universities, regional universities, senior colleges, and two-year colleges. The key change that occurred was that two former senior colleges, Valdosta State University and Georgia Southern University formed a separate institutional sector,

referred to as regional universities. By 2001, the University System experienced another administrative shift and change of senior personnel inclusive of a new chancellor. During this time period, institutions were invited to submit requests for mission review and change (Board of Regents, Mission Review, 2001). Specific institutions were granted approval to submit baccalaureate proposals and revised mission statements in an attempt to form a new institutional sector referred to as state colleges (T. Meredith system communication, April 7, 2005). Concomitantly, current regional universities and some senior colleges were invited to submit proposals for applied doctorate degrees in order to reach a Carnegie research intensive status. As a result of the emergence of baccalaureate degrees, a new sector was developed with a guiding mission statement for all two-year colleges that offer select, workforce specific baccalaureate degrees. The institutions that were granted approval to offer initial baccalaureate degrees were Macon State College, Dalton State College, Abraham Baldwin Agricultural College, Gainesville State College, Middle Georgia College, and Gordon College. Table 11 depicts the gradual shift of several two-year colleges toward the offering of baccalaureate degrees instead of the sole classification as an access institution that provides an opportunity to earn an associate's degree or transfer to a University System institution that awards baccalaureate degrees.

Table 11
Two-year College History of Establishment, Sector Change, and Mission Change

Two Year Colleges as of 2000 - 2001	Dates of Mission, Sector Name Change, and First Bachelor's Degree Approval	Two Year Colleges as of April 30, 2007
Abraham Baldwin Agricultural College	Abraham Baldwin Agricultural College May 2006	
Atlanta Metropolitan College		Atlanta Metropolitan College
Bainbridge College		Bainbridge College
Coastal Georgia Community College		Coastal Georgia Community College
Darton College		Darton College
East Georgia College		East Georgia College
Floyd College		Georgia Highlands College (formerly Floyd College)
Gainesville College	Gainesville State College October 2005	
Georgia Perimeter College		Georgia Perimeter College
Gordon College	Gordon College May 2006	
Middle Georgia College	Middle Georgia College May 2006	
South Georgia College		South Georgia College
Waycross College		Waycross College
Total: 13 two-year colleges (not including Dalton State College or Macon State College)		Total: 9 two-year colleges

For the purposes of this research, Gainesville State College and Middle Georgia College will be included with the two-year colleges because their change of mission, sector and approval of baccalaureate degrees are recent events and do not mean that they will award baccalaureate degrees immediately. Furthermore, data are from earlier years such that

the first cohorts of baccalaureate degree-seeking students have not completed their programs of study. From a historical perspective, Macon State College and Dalton State College were the first two-year colleges to revise their mission statements and sector representation to form the state university sector in November 1998. The two institutions were the first two-year colleges to be approved to offer select, workforce-specific baccalaureate degrees. The number of state colleges is poised to increase with opportunities being granted to community colleges through mission review and expansion to further expand their degree-granting capabilities as it relates to demographic and workforce related needs. Although these changes in mission and degree programs occurred, the aforementioned institutions are still grouped together and referred to as access institutions due to their hybrid degree offerings and minimal admission requirements.

The University System of Georgia, otherwise referred to as the University System in this study, had thirteen community, or rather, two-year colleges that are considered points of access for students across the state who do not meet the admission requirements for a state or research university, for those students who desire a community college experience, and for those students who do not have resources to relocate to another county or city to pursue postsecondary education opportunities. According to the University System of Georgia's vision statement, "it will seek to create for students from various backgrounds every possible avenue to intellectual achievement without compromising academic excellence, and challenge them to their full potential for leadership" (USG, Information Digest, 2000 – 2001, p. 2). To that end, the University

System of Georgia is characterized by the following goal in its vision statement, "Leadership in establishing higher state standards for post-secondary education and—with the public schools and technical institutes—in improving and valuing education at all levels, helping students move smoothly within the System and from one educational sector to another, and insuring that all students who enter the University System are prepared to succeed" (USG, Information Digest, 2000 – 2001, p. 2).

Mission of Community Colleges

According to Thornton (1972, p. 47) community college development was based on four distinct time periods. Between 1850 and 1920, junior colleges were considered separate institutions offering the first two years of baccalaureate study. By 1920, terminal and semiprofessional education in the junior college gained favor along with establishment of the American Association of Junior Colleges. Later, by 1945, the end of World War II and changes in post-high school education precipitated an emphasis on service to the adults of a community. After 1945, the community junior college evolved and developed its transfer function and recognition as a part of the total system of higher education. Although considered a part of the total system of higher education, its role was often subordinate to universities. Hutcheson (1999) in his essay concerning the historical and modern-day significance of community colleges, addresses scholarship that analyzes the "utility, research, and liberal education" of such institutions (p. 310). With historical evidence spanning the works of Laurence Veysey, Burton Clark, Stephen Brint and Jerome Karabel, and Leonard Koos, to name a few, the community college has been

an integral thread of the higher education fabric although "the research university has been used as a means of understanding United States Education in its institutional form" (Hutcheson, 1999, p. 307).

According to Kirst and Venezia (2004, p. 255), community colleges now serve as a point of entry for students who would not otherwise participate in postsecondary education. Community colleges have also become more comprehensive institutions by providing a broad range of academic, service, and training functions. Such institutions are able to respond to public and workforce needs readily (Kirst and Venzia, 2004, p. 256). Often tension exists between the dichotomous role of being an open access institution with upholding specific standards for college-level work and industry expectations. Open access also translates into increased remediation at the community college level (Kirst and Venzia, 2004, p. 257). Such trends speak to the mis-alignment of commonly understood standards between secondary and post-secondary systems with regard to student outcomes. Because institutional retention is not the same as student persistence, transfer from community colleges to other institutions is not as precise as institutional researchers would prefer. Variables that impact student persistence can be found in Tinto's Theory of Student Departure and include pre-entry attributes, goals and commitments, institutional experiences including academic performance, faculty/staff interactions, and extracurricular activities, as well as academic and social integration, and external commitments (Pascarella and Terenzini, 2005). Tinto (1994) asserts that student departure from higher education occurs in terms of individual, interactional, and external community factors inclusive of financial considerations. Tinto states that on the

individual level, "intention and commitment are the two attributes that stand out as primary roots of departure" as well as four forms of experience: adjustment, difficulty, incongruence, and isolation (1994, p. 37). Interactional factors that lead to student departure, according to Tinto, concern "individual interactions with other members of the institution and the individual's perception of the degree to which those experiences meet her/his needs and interests" (1994, p. 45). External community factors include the demands of employment, family responsibilities, financial impact and fluctuations in resources, and institutional involvement, and quality of student effort. In addition, student departure may be voluntary as well as involuntary due to academic dismissal. The ease of accessibility to a community college may also be a factor in student departure when one takes into account "the ability to drop a class with minimal penalties, the opportunity to attempt a class several times, and the ability to act upon a decision to leave without specific time designations" (Cain, 1999, p. 88). Cohen and Brawer (2003) in discussing Astin's research conclude that several factors that lead to attainment of a degree are not found at community colleges. Factors leading to the goal of graduating include "residence on campus, high interaction with a peer group, the presence of good students on campus, and full-time student status" (Cohen and Brawer, 2003, p. 66).

Studies such as one conducted by Strauss and Volkwein (2004) indicate that institutional commitment is a predictor of student-persistence behavior indicative of "satisfaction, sense of belonging, and willingness to attend the institution again, and perception of quality" (p. 203). Strauss and Volkwein (2004) also found that the major factors differentiable between two-year and four-year public institutions that lead to

institutional commitment involve the classroom experience. Specifically, "although classroom experiences and social integration both predict institutional commitment scores, the classroom experience is a more influential predictor at two-year institutions (Smith and Volkwein, 2004, p. 219). Successful degree attainment varies by student group when taking into account factors germane to the community college experience, individual circumstances, and institutional characteristics and support systems. According to Kirst and Venzia (2004, p. 259), reported rates of transfer range from 14 or 15 percent to 40 percent, but fewer students actually transfer compared to their aspirations.

The core mission of community colleges (two-year colleges) in the University System of Georgia is composed of specific characteristics that are chosen to enable each institution to focus on its own distinctiveness in terms of the communities it may serve. The specific core characteristics for community colleges as specified by the Board of Regents include the following (retrieved, August 15, 2004):

- a commitment to excellence and responsiveness within a scope of influence defined by the needs of a local area and by particularly outstanding programs or distinctive characteristics that have a magnet effect throughout the region or state;
- a commitment to a teaching/learning environment, both inside and outside the classroom, that sustains instructional excellence, functions to provide

University System access for a diverse student body, and promotes high levels of student learning;

- a high quality general education program that supports a variety of well-chosen associate programs and prepares students for transfer to baccalaureate programs, learning support programs designed to insure access and opportunity for a diverse student body, and a limited number of certificate or other career programs to complement neighboring technical institute programs;
- a commitment to public service, continuing education, technical assistance, and economic development activities that address the needs, improve the quality of life, and raise the educational level within the college's scope of influence;
- a commitment to scholarship and creative work to enhance instructional effectiveness and meet local needs.

Community colleges have, according to Eaton, a horizontal and vertical function (1994b). "The horizontal function – reaching out and encompassing large numbers of individuals in a range of educational experiences – is a dominant theme in both the occupational and community service visions of the community college; whereas, the vertical function – reaching up and connecting to other institutional settings of importance to community college students – dominates the collegiate role" (Eaton, 1994b, p. 121). Eaton further suggests that the transfer function is one of the primary

means by which community colleges are able to differentiate themselves from technical and adult institutes and vocational preparatory institutions, "proprietary trade schools, adult education learning centers, and corporate learning programs" (Eaton, 1994, p. 49). However, later in Eaton's argument concerning the collegiality of the community college, Cohen's concerns about the rigor of community colleges is voiced in terms of the use of the transfer function to propel students into occupational-specific programs, a preoccupation with remedial education, and the completion of non-sequenced courses thus detracting the community college from some of its core functions (Eaton, 1994b, p. 50).

Demographic and Characteristic Overview

Community colleges are often thought of as those educational institutions that support the silent majority of students who are overlooked by four-year institutions, or rather, to extend educational opportunities to persons of limited financial means who cannot leave the community, those uncertain about their academic abilities, and persons geared more quickly to employment than four-year college offerings" (Gleazer, 1984, p. 7). According to Kirst and Venezia (2004, p. 255), community college students are more likely to be older, more ethnically and racially diverse, and less affluent than their four-year counterparts. The American Association of Community Colleges' (AACC) profile of community college students, according to Kirst andVenezia (2004, p. 255) indicates the following statistical portrait:

- Fifty-eight percent are women.
- Thirty percent are racial minorities.
- Thirty-two percent are thirty years or older of which 36% are between ages 18 to twenty-two.
- Sixty-four percent attend part-time.
- Sixty-five percent depend on their parents financially.
- Half are the first in their families to attend college.
- Depending on the survey completed, twelve to 28 percent already have a postsecondary degree.

Based on a statistical fact sheet produced by the American Association of Community Colleges retrieved as of November 2005, a total of 1,157 community colleges have been established in the U.S. of which 979 are public institutions. Community colleges enroll approximately 11.6 million students, 46% of all U.S. undergraduates of which 45% are first-time freshmen, 58% are women, and 62% attend part-time. According to ethnicity, community colleges enroll 57% of Native American, 48% of Asian/Pacific Islander, 56% of Hispanic, and 47% of Black undergraduate students. Student profiles of community colleges also indicate that 37.8% of all students receive some form of financial aid and the average student age is 29 years. Revenue sources for public colleges consist of state funds (44%), tuition and fees (20%), local funds (25%), federal funds (5%), and other, external

funds (11%). Annually, community colleges confer approximately 490,000 associate degrees and 235,000 two-year certificates.

McGrath and Spear's portrait of the community college student suggests that "more than fifty percent of all Hispanic college students and more than forty percent of Black college students are enrolled in community colleges and a decline in transfer represents a decline in real opportunity for these groups" (1991, p. 39). The decline in transfer between community colleges and universities has also been reflected in the level of student preparation both to and from the community college. Administrators have lamented that students are not sufficiently prepared for college-level work. However, related research has revealed that during their junior college phase, "community college university parallel programs (transfer programs) were exemplary and differentiable from career, technical, and remedial programs such that the rigorous academic practices of university lower-division courses were the models of excellence" (McGrath and Spear, 1991, p. 38).

Descriptions of the community college for later periods have characterized its students as those who "have flunked out, have dropped out, or have been pushed out of the university" (Moore, 1971, p. 14). Community colleges are considered the least expensive post-secondary option for students. The average tuition for community colleges nationally is $1,500, much less than four-year institutions (Kirst andVenezia, 2004, p. 255).

Cultural Impact of Community Colleges

Community colleges serve as vehicles to transmit cultural, emotional, and social capital. The socialization of students in community colleges cannot necessarily be generalized to the sector itself because "cultural differences exist not only within the sector as a whole, but also within individual community colleges and specific components of individual colleges (Shaw, Valdez & Rhoads, 1999, p. 1). According to Shaw et. al. "community colleges have been criticized for failing to acknowledge or adapt to the diversity in their student populations, resulting in stubbornly low transfer rates and consistently high dropout rates" (1999, p. 3). Another factor impacting transfer rates and integral to a discussion of culture within community colleges concerns whether the administration of an institution uses monocultural or multicultural approaches to the educational environment with a direct bearing on curriculum and pedagogy. According to Shaw et. al., monocultural education approaches are described as those "authoritarian pedagogical styles used to dominate the educational landscape, whereas multicultural education embraces the diversity of the student body and results in a more flexible pedagogical style designed to empower students" (1999, p. 6).

Those who matriculate into the community college represent its uniqueness. As described by Palinchak, "with the most diverse clientele in higher education, the community college serves people who are more representative of society than any other institution of higher learning: the many categories include young students, adult students, veterans, skilled workers, the disadvantaged, terminal students, transfer students, and students of diverse ethnic origins" (1973, p. 186). Although such labels are used to

describe students who attend community colleges, Moore (1971) suggests that students know that their success is tied to good teaching and quality education as opposed to any theories of cultural deprivation (p. 77).

Research has also shown that an emphasis on the workforce preparedness philosophy of some community colleges and the specific programs or departments that are part of such institutions helps to further "preserve existing social and economic structures and paves the way for students to accept low-wage, low-skilled jobs; thus, social and economic classes are reproduced through postsecondary institutions" (Shaw et. al., 1999, p. 9). O'Banion (1989) suggests that institutional leaders look for trigger events, dramatic projects or processes that can be leveraged for channeling a vision larger than intended, that can change prevailing culture (e.g., job training) to one that helps students make passionate connections to learning" (p. 226). Similarly, McGrath and Spear (1991) state that "articulation agreements based on comparability of course content do not necessarily ensure a fit between the academic cultures of community colleges and universities" (p. 41).

Identity formation and reformulation are part of the student experience irrespective of age of admittance or other classification categories of students. Colleges do not necessarily reflect and embrace multiple identities that are part of the student experience. The new majority in the community college could be classified as the adult student. According to Zwerling (1992, p. 47), the non-traditional, part-time student with work and family responsibilities is more commonly found on community college campuses. Community colleges can address cultural and border knowledge by

"embracing ethnically diverse students and providing culturally-specific programs and support services that simultaneously enable a student to become part of a community college and maintain one's identity" (Shaw et. al., 1999, p. 10). Examples of such support programs at four-year institutions can be found at institutions described by Kuh, Kinzie, Schuh, Whitt and associates (2005) as DEEP schools (college and universities Documenting Effective Educational Practice). DEEP institutions, as they are categorized, exhibit success in the areas of student engagement and graduation rates. In this case, such baccalaureate-granting institutions were identified by their "higher-than-predicted" scores on five clusters of effective educational practice used by the National Survey of Student Engagement (NSSE). According to Kuh et. al., DEEP institutions exhibited strong clusters "in level of academic challenge, active and collaborative learning, student interaction with faculty members, enriching educational experiences, and supportive campus environments" (2005, p. 10).

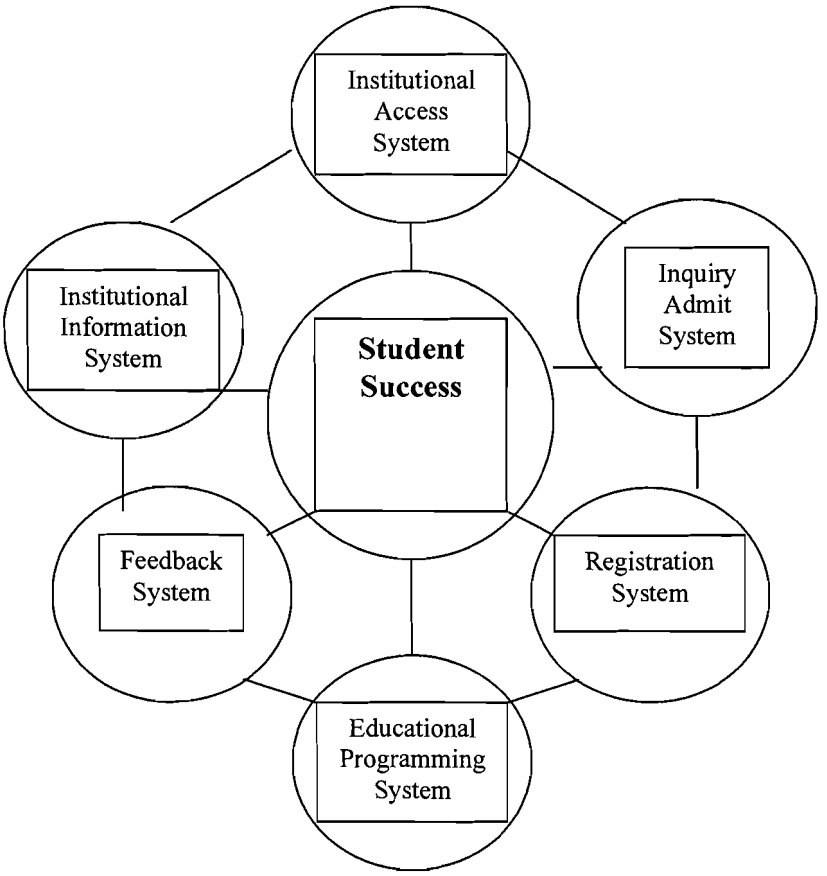
Evergreen State College, one of the DEEP schools highlighted in Kuh et. al.'s research admits "approximately one-third of its incoming students come from a transfer student pool and the institution has adopted transfer-friendly policies such as automatic acceptance of all credits for students who have completed an associate degree at a Washington community college" (Kuh, et. al., 2005, p. 255). Another example of an institution that admits a substantial number of transfer students is George Mason University. According to Kuh et. al. almost half of the incoming class each year at George Mason University are transfer students who have a separate orientation program, support services, and specially designated sections of a university orientation course that

cover policies, requirements, and available campus resources" (2005, p. 255 – 256). Thus, sufficient preparation for academic transfer is part of the student success model. According to Kuh et. al (2005), commuter and part-time students are numerous at such colleges as University of Texas at El Paso (UTEP), California State University Monterey Bay (CSUMB), and George Mason University (p. 14). However, none of the DEEP schools represented are two-year colleges. Rather, students transfer from two-year colleges to the DEEP schools with specific support services for transfer students.

Lindemann's student success model (O'Banion, 1999, p. 75) as depicted on the following page is inclusive of several systems that could provide information concerning the transfer rate of students and eventual completion of a baccalaureate degree. This further underlies the importance of having systems that track student progress that describe who students are in the educational pipeline and where they are going in terms of degree attainment. Lindemann's (1994) model of student success as captured in Figure 1 shows that an institution's integrated educational system plays a role in retention, progression, and graduation at an institution.

Figure 1

Lindemann's Conceptual Model for Student Success

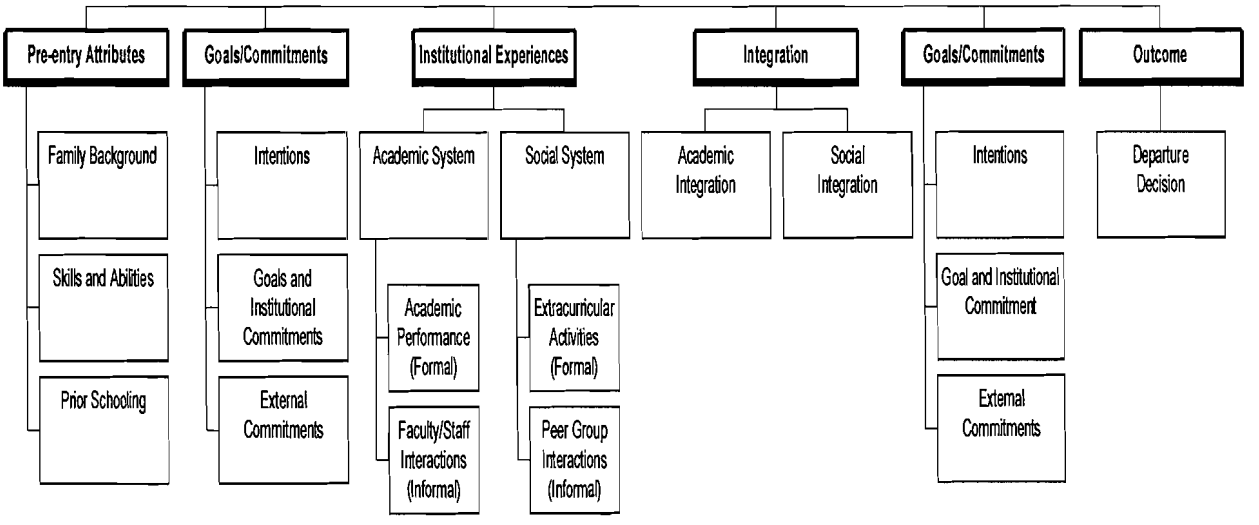


The Lindemann model of student success, with one of its components being the educational programming system, has linkages to the cognitive complexity and minimal standards associated with the core curriculum. In addition, the robustness and rigor of the curriculum is the transferability of courses from one community college or two-year institution to another and from one sector to another. Eaton's discussion of the portability of courses is steeped in a description of the collegiate nature of community colleges and college level competencies (1994).

Tinto's (1993) Model of Student Departure as provided in Figure 2 includes pre-entry attributes, student goals and commitments, student institutional experiences, academic and social integration, and student outcomes consisting of departure or graduation. Tinto's model has been used in studies of student persistence at community colleges and universities (Halpin, 1990; Pitkethly and Prosser, 2001; Elkins, Braxton, and James, 2000; Liu and Liu, 1999; Berger and Braxton, 1998; and Brunsden, Davies, Shevlin, and Bracken, 2000).

Figure 2

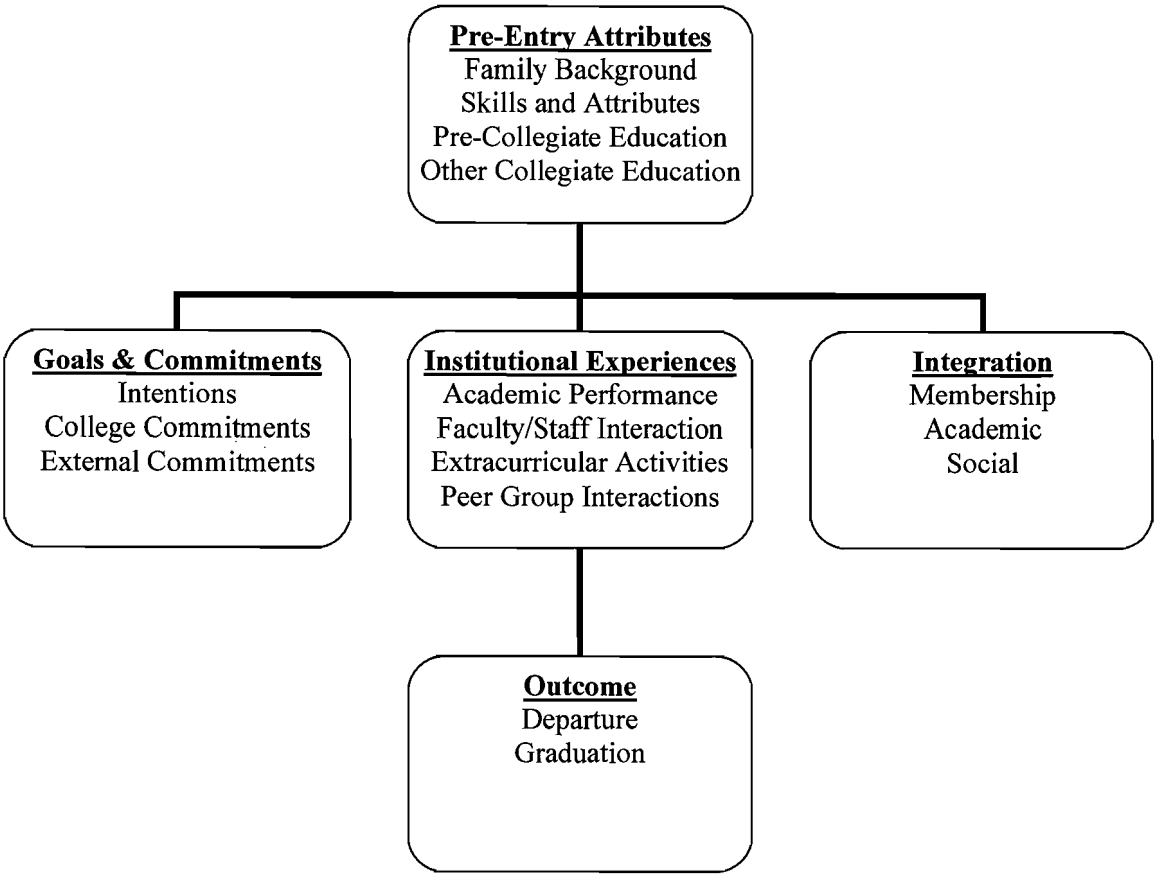
Tinto's Longitudinal Model of Institutional Departure



Adapted from:
Source: Tinto, V. (1993, 2nd edition). Leaving college: Rethinking the causes and cures of student attrition (p. 114). Chicago: The University of Chicago Press.

Figure 3

Alternative Version of Tinto's Model of Student Departure



Halpin's case study (1990) researched community college student persistence of first-semester freshmen through the use of a model of college student persistence/withdrawal that had predictive validity when used with four-year, residential universities. The outcomes of Halpin's (1990) research indicate that Tinto's Model of Student Departure as shared in Figure 3 has utility for retention and that with background and environmental factors controlled, the level of a student's integration with the academic and social environment of college is a significant predictor of student retention. Elkins, Braxton,

and James (2000) researched the underlying causes of student separation from an institution using Tinto's model. With specific attention placed on the first year student, Elkins et al. al. (2000) focused on the separation stage of the college experience using such variables as student pre-entry characteristics, initial institutional commitment, and first-to-second semester persistence. Elkins et. al. (2000) found that direct effects on student persistence include a support network that provides encouragement and reinforcement to attend college and a rejection of the attitudes and values of past communities that do not place a high value on attending college. Elkins et. al. (2000) concluded that first-semester students who successfully passed through the separation stage were more likely to return for a second semester of study.

Liu and Liu (1999) used Tinto's Model of College Student Attrition as a basis for researching student departure disaggregated by ethnicity and gender to further explain that student departure is part of a social stratification process influenced by a college or university with direct affects on a student's post-college opportunities. Liu and Liu (1999) conducted research using longitudinal data from a medium-sized Midwestern commuter campus and a sample of 14, 476 students. Variables used in this study were grade point average, sex, race, native freshmen versus transfer students, age, and dropout versus completion status. Using a probit procedure to estimate the effect of each independent variable on the dropout/retention status, Liu and Liu (1999) found no significant differentiation between retention rates based on gender, but did find significance based on ethnicity and age. In addition, the results of their research

indicated that transfer students tended to have a higher retention rate than native freshmen, perhaps due to accrued credit and previous college experience.

From a student interaction perspective and its impact on college persistence, interaction effects can be found in various types of institutions. Berger and Braxton (1998) examined the effects of social integration in the college environment on student withdrawal processes. Using concepts from organizational theory with Tinto's model of student departure, Berger and Braxton (1998) researched student withdrawal at a selective, private, residential, Research I university. Surveys from approximately 1,343 students collected during August 1995, October 1995, and March 1996 were used to assess student behaviors and perceptions concerning a broad array of issues related to college persistence. Included in the survey were items concerning faculty teacher behaviors, student involvement, perceptions of the campus environment, campus climate, reactions to stress, and satisfaction. Results of Berger and Braxton's (1998) research indicate that direct effects on student persistence found in organizational attributes and social integration include organizational attributes such as participating in decision making, institutional communication, fairness in policy and rule enforcement, peer relations, and faculty relations. Pascarella and Terenzini (1979) investigated main and interaction effects of student characteristics with measures of social and academic integration on voluntary freshman withdrawal decisions. As a result of their research, the they found that "what happens during the freshman year may be more important than the particular commitments and background characteristics of a student in terms of voluntary withdrawals (Pascarella and Terenzini, 1979, p. 208)."

In terms of the community college campus climate the sense of dependence rather than independence may be an ironic and unintended consequence of the way community college faculty are encouraged to reach out to students. (Seidman, 1985, p. 99). Likewise, institutional costs are intensive when working with students during the first two years of college, so much so that

> the cost for faculty of the student-centered model has become very high, the consequences for students ambiguous, and the underlying conception a tangled mixture of social work and teaching. The dominant model of student-centeredness in the community college may need reexamination and is deeply related to the dichotomy between teaching and research and to the intellectual character of teachers' work in the community college. (Seidman, 1985, p. 101)

All of the studies that used Tinto's model as a basis of the theoretical framework suggest that additional study and policy formulation must be undertaken that moves past gross enrollment figures, but rather, analyzes student persistence toward degree attainment.

State-Level Articulation Studies

Why is transfer important? Based on research conducted by the National Center for Public Policy and Higher Education and the Institute for Higher Education Policy, successful transfer from a community college to baccalaureate degree granting institutions is one of the most important state policy issues in higher education because the success or failure of such activity has impacts on access, equity, affordability, cost effectiveness, degree productivity, quality, time-to-degree length, achievement

disparities, transfer performance, and transfer accountability (Wellman, 2002). Strong positive correlations between ethnicity, gender, and income indicate that two-year and community colleges enroll the largest proportion of students of color, women, and first-generation immigrant families (Wellman, 2002). Thus, from a cost-effectiveness perspective, community colleges will be called upon to open their doors even wider through open admissions policies that increase gross enrollments at the associate degree level without incurring the cost of expanding four-year colleges and universities through external sites or the establishment of multiple campuses.

According to Prager, "at a minimum the public has the right to expect that students who complete programs supported by public dollars in one educational format meeting comparable qualitative tests should be allowed to move on to another educational format without penalty to either the student or the taxpayer" (1995, p. 69). Nevertheless, transfer does not always occur between public institutions or private institutions given "the enrollment pool of students and the socioeconomic connection between education and career mobility" (Prager, 1995, p. 68). Townsend and Twombly (2001) suggest that certain indicators are required to assess state-level articulation agreements. The following principles form the basis for examining the strength of transferability between and among institutions based on the literature and existing state policies (Townsend and Twombly, 2001, pp. 176 – 179):

1) Associate and baccalaureate-granting institutions are equal partners in providing the first two years of baccalaureate degree programs.
2) Transfer students should be treated comparably to "native" students by the receiving institution.
3) Faculty from both two-year and four-year institutions have primary responsibility for developing and maintaining statewide articulation agreements.
4) Statewide articulation agreements should accommodate those students who complete a significant block of coursework (such as the general education requirements) but who transfer before completing the associate's degree.
5) Articulation agreements should be developed for specific program majors.
6) A state's private institutions should be included in statewide articulation agreements.
7) A statewide evaluation system should monitor the progress and completion of transfer students.

Based on Townsend and Twombly's (2001) 1999 survey of SHEEO officers and directors of community college agencies, they were able to generate a list of states with articulation agreements and the type of transfer activity that is covered under state policy. A modified version of the survey results is listed below in tabular form according to SREB state response (Townsend and Twombly, 2001, p. 181).

As shown in Table 12, Georgia is one of seven states with comprehensive articulation agreements for public institutions. Alabama does not provide four to four transfer or reverse transfers.

Table 12

Survey of SHEEO Officers and Articulation Agreements for SREB Schools

SREB State	2 to 4 yr.	2 to 2	4 to 4	4 to 2 Reverse Transfer	Publics Only
Georgia	X	X	X	X	X
Alabama	X	X			
Arkansas	X	X	X	X	X
Delaware					
Florida	X	X	X		
Kentucky	X	X	X	X	X
Louisiana	X	X	X	X	X
Maryland	X	X	X	X	X
Mississippi	X	X			X
North Carolina					
Oklahoma	X	X	X	X	X
South Carolina					
Tennessee					
Texas					
Virginia					
West Virginia	X	X	X	X	X

Source: Townsend and Twombly (2001, p. 181). Institutions, Sectors, and percent of Undergraduates Included in Statewide Articulation Agreements (n = 34).
Note: States without a statewide agreement at the time of the 1999 survey include the following SREB states: Delaware, South Carolina, Texas, and Tennessee. Otherwise, SHEEO officers did not respond to the survey.

To further compound the complexity associated with state policies on transferability between institutions, according to Wellman (2002, p. 15), a survey conducted by the Education Commission of the States (ECS) concluded that the fifty states define two-year to four-year (2/4) transfer differently according to seven categories. The report further recommended that states design comprehensive policies to support transfer. The categories of 2/4 transfers according to the ECS survey are described below:

1) Legislation: state law articulates the 2/4 transfer mission (30 states).
2) Cooperative agreements: statewide frameworks or networks support voluntary cooperation between institutions (40 states).
3) Transfer data reporting: the state collects some type of data on 2/4 transfer patterns (33 states).
4) Students are given incentives and rewards for transfer: financial aid or guaranteed admission (18 states).
5) Statewide articulation guides describe the requirements for course and institutional articulation between two-year and four-year institutions (26 states).
6) Statewide common core curricula (23 states).
7) Common course numbering systems (8 states).

In Georgia, the categories of the ECS survey can be applied based on the following information provided in the University System Academic Affairs Handbook:

> System frameworks indicate that the core curriculum for one institution is fully transferable at the receiving institution for the same major. If students cannot complete the entire core curriculum at one college, then if a student does not

change majors, individual courses such as English Composition 1101, English Composition 1102, and an essential skills mathematics course will be guaranteed transferable. Because the Board of Regents is constitutionally authorized, articulation agreements are not a part of legislation. Transfer data reporting consists of aggregate information regarding the number of students transferring from in-state institutions, out-of-state institutions, and within-system transfers. Extra incentives and rewards are not provided for transfer. Statewide transfer guidelines are listed in the Academic Affairs Handbook and a common course numbering system exists for core courses (Academic Affairs Handbook, USG System, retrieved February 27, 2008).

Transferability Studies and Impacts on Degree Attainment

Research that has been conducted on transferability includes an analysis of academic aspirations and resultant outcomes, specialized programs that help to market and ease anxiety concerning the transition from a two-year college to a four-year college, course-based analysis that focuses on student learning, and the analysis of academic factors relative to persistence including college grade point averages and attainment of an associate's degree. According to a report of the American Council on Education's Center for Policy Analysis (Choy, 2002, p. 20), students starting at a two-year institution rather than a four-year institution with the intention of earning a bachelor's degree were associated with a greater likelihood of leaving postsecondary education without having earned a degree (46 percent versus 23 percent). Additionally, while more than half (57

percent) of the students who started at four-year institutions in 1989–90 and sought bachelor's degrees had reached that goal by 1994, only eight percent of those who started at two-year institutions in the same year had earned a bachelor's degree by 1994. Lastly, bachelor's degree seekers who started at two-year institutions had comparable persistence rates as that of native students. According to the data, those students just took longer to complete their baccalaureate degrees (p. 21). The community college has been described as a good testing ground for students who are unsure about their goals and academic abilities.

Lee and Frank (1990) analyzed pre-college characteristics that encourage student transfer from a two-year college to a four-year college in their analysis of 2,500 students who entered college after graduating from high school in 1980. Lee and Frank's research followed the "polarity about social stratification, focusing on the differentiation between access to and persistence in higher education as characterized through community college research" (1990, p. 179). Based on the outcomes of Lee and Frank's research, a causal model was developed to "typify the background, high school experiences, and college-level experiences that facilitate transfer to a four-year college" (1990, p. 180). The causal model included such factors as student background, high school behaviors, high school outcomes, and community college behaviors. The background characteristics of successful two-year to four-year college transferees, according to their research, were those students who "were more academically oriented in high school, were of a higher social class, less likely to be minority, and less likely to be female" (Lee and Frank, 1990, p. 184). In contrast, Seidman (1985) in his interviews of faculty at community

colleges found that overall two-year college students were, when compared to students in other sectors, less wealthy, members of minority groups, older, part-time, working, and less well prepared"(p. 11). This dichotomous view of the community college persists in recent literature. Levin (2001, pp. 178 – 179) describes light and dark sides of the community or learning college according to the following description:

> The light side envisions independent learners pursuing knowledge and skills with the guidance of professionals and the support of advanced technology. The dark side envisions a further stratified higher education system where the poor, the disadvantaged and minority populations are served by "distance," either in the form of professionals with whom they have little personal contact or in the form of machinery and electronics that reflect a standardized approach to schooling. This systematized technological biting will further disadvantage community college students, especially in their pursuit of baccalaureate degrees.

Velez (1985) analyzed the effect of attending a two-year college versus a four-year college on whether students complete a baccalaureate degree. Using multivariate analysis on data extracted from NLS-72, Velez used the variables SES, high school curriculum, high school grades, college grades, aptitude, plans, and living quarters to determine the effect of institutional type on degree attainment. Results of the study indicate that "students who start in two-year colleges have lower odds of finishing than students who start in four-year colleges" (p. 197). Christie (1998) studied the effect of institutional type, defined as two-year or four-year institution of students' initial matriculation, on baccalaureate attainment. Using logit regression on data from the 1980

National Center for Education Statistics (NCES) High School and Beyond program, the study included only students who graduated from high school and attended a non-proprietary college on a full-time basis. Results of the study indicate that students who first matriculated at a two-year college had a statistically significant net decrease in the probability of earning a baccalaureate degree (Christie, 1998).

Research conducted by Dougherty (1987) on the effects of community colleges on socioeconomic attainment indicate that "attending a community college hinders students' transfer to four-year schools in two ways: 1) students lose their desire to transfer and 2) students who wish to transfer find it difficult to do so" (p. 96). Likewise Dougherty's (1992) research on community colleges and baccalaureate attainment determined that a baccalaureate gap exists and is only partially explained by the different characteristics of student bodies at two-year versus four-year colleges. According to Dougherty (1992), the baccalaureate gap is attributable to "various institutional characteristics of the community college and of the higher education system generally that produce lower rates of persistence, transfer to the upper division, and persistence in the upper-division than is the case for four-year colleges" (p. 204). Dougherty suggests that proposals to address degree attainment disparities can be categorized as operational reforms otherwise known as reforms that improve transfer education without changing the community college, and structural reforms, which alter a community college's structure.

Wegner and Sewell's (1969) earlier work on selection and type of college on the probability of graduation likewise found that "the type of college attended has an independent effect on the chances of completing a degree" (p. 678). Outcomes of

Wegner and Sewell's work suggest that the variability of students across institutions is parallel to the probabilities of success of groups based on status. Likewise, Kane and Rouse (1999) in their survey of the literature on community colleges state that "while the percentages of students who complete a degree increases among two-year college students, degree completion still lags behind that of four-year colleges.

Residential transfer programs have provided students with the requisite preparation and opportunities to move from a community college to a university in pursuit of a baccalaureate degree. Often, the programs are residential in nature and thus do not necessarily address the specific circumstances of the adult, non-traditional student. One such example is the Exploring Transfer program, a program funded by the Ford Foundation that initially began as a collaboration between Vassar College and LaGuardia Community College. Participating students in the program are "selected for their academic promise, attend an intensive five-week program on the Vassar College campus, and are introduced to the experience of a four-year residential college that challenges their abilities through two rigorous, team-taught courses, makes them aware of the full range of transfer opportunities available to them, and helps them develop confidence in their abilities to achieve their goals" (Chaffee, 1992, p. 87). According to Chaffee (1992), at least 264 students successfully completed the program and transferred to a four-year college over a six-year period. The program's success was derived from a direct experience technique of immersing students in a university's culture and philosophy.

The analysis of transfer success through the paradigm of a course-based model was investigated by Quanty, Dixon, and Ridley (2004) using data and information gathered from Thomas Nelson Community College and Christopher Newport University in Virginia. Supported by the state of Virginia's State Council for Higher Education, the researchers shifted their analysis from a student-based component to a course-based component. In other words, the course-based model of transfer success (CBMTS), "yielded information that showed how well 1,800 students who completed course prerequisites at a community college performed in specific courses compared to students who completed the prerequisites at the receiving college. The emphasis was on how well courses prepare students" (Quanty et. al., 2004, p. 46). The analysis included a tracking system that examined each required course that could be met at Thomas Nelson Community College, Christopher Newport University, or at another college. Quanty et. al. 2004) found that "students who complete course prerequisites at Thomas Nelson Community College perform at a level at least equivalent to students who complete prerequisites at Christopher Newport University" (p. 47). Research results further indicated that "demographic considerations do not matter when a faculty member has certified that the student has mastered course requirements when faculty members take ownership for students who have successfully completed their courses" (Quanty et. al., 2004, p. 47). Thus, this research method focused on faculty taking ownership of courses and certifying that students had mastered the material as a means of assessing student learning and preparing for transferability. A generic version of the CBMTS was developed in 1996 with funds awarded from the Fund for the Improvement of

Postsecondary Education (FIPSE) to adapt the model and test it with other colleges in the state of Virginia. (Quanty et. al., 2004). The program can best be used if partnering institutions are willing to share the following files: "course files that include a student identifier, course identifier, course grade, and term; a target-course file that lists all courses at the four-year college or university that have prerequisites; and a course-equivalency file that identifies community college courses that transfer as prerequisites for particular target courses" (Quanty, et. al., 2004, p. 48).

Cejda and Rewey (1998) analyzed the impact of academic factors on transfer student success by reviewing community college grade point averages and completion of the Associate of Arts degree. These two academic factors related to persistence and graduation were analyzed using 200 students who completed the Associate of Arts degree and transferred from a community college to a private college during a five-year period. Cejda and Rewey's population focused on traditional aged, full-time students because of concerns about part-time matriculants' degree completion rates. Cejda and Rewey (1998) suggested that "their research lends support to previous findings that academic performance at the four-year institution is associated with the community college GPA such that a significant relationship exists between a community college GPA of 3.0 or higher and the first semester GPA at a liberal arts college" (p. 677). The limitations of their study included voluntary articulation agreements between types of institutions, the sample used a traditional-aged population, and the study used data on community college students who had only completed their first semester at a private college.

Costs of Transfer

Why don't higher education institutions admit more transfer students? Is the lack of robust transfer indicative of the lack of articulation agreements? The increase in enrollment and tuition revenue would enable institutions to meet some of their stated strategic objectives. Ehrenberg (2000) suggests that cost is not a prohibitive factor due to the fact that other sources of revenue are decreasing. "As federal and state funds have dried up, universities have increasingly become dependent on the undergraduate tuition revenue that they generate. One strategy is to admit more transfer students. This does not cost a university anything in the ratings game because the ratings of undergraduate student quality are typically based only on the test scores and class rank of entering freshman students" (Ehrenberg, 2000, p. 177).

Concomitant with the cost of transfer is a discussion of higher education affordability. According to the National Center for Public Policy and Higher Education's report (2005) on improving college readiness and success, at least 21% of a person's income is needed to pay for college expense at a community college and slightly less than half of all first-time freshmen will complete a bachelor's degree within six years of attending college. Below is a snapshot of specific statistics cited in the report's section on postsecondary affordability and completion:

- Percent of income needed to pay for college expenses minus financial aid at community colleges: 21%
- Percent of income needed to pay for college expenses minus financial aid at public four-year postsecondary institutions: 24%
- First-year community college students returning for their second year: 54%

- Freshmen at four-year postsecondary institutions returning for their second year: 79%
- First-time, full-time students completing a BA degree within six years of college entrance: 42%
- Certificates, degrees, and diplomas awarded at all institutions per 100 students: 20

Source: The Governance Divide: A Report on a Four-State Study on Improving College Readiness and Success. The Institute for Educational Leadership, The National Center for Public Policy and Higher Education, The Stanford Institute for Higher Education Research. September 2005, by A. Venezia, P. M. Callan, J. E. Finney, M.W. Kirst, and M. D. Usdan, Appendix, pp. 42 – 43. National Center Report #05-3, p. 15.

Other Aspects of Transfer

Transfer student activity is important to the academic health of a community college. According to Fonte' (1994), transfer is one of four principal instructional missions within a framework from which scholars post assessment questions. The other instructional missions are career preparation, developmental education and continuing education, and the unique community college mission of access (p. 41). Likewise, public reports should include transfer information that is measurable. Assessment should inform efforts by campuses to address the needs of students from diverse backgrounds with an array of educational needs. Fonte' (1994) suggests that because students learn in various manners and are admitted at various preparation levels, "campuses should seek information that tells how students differ by ethnicity in such areas as retention, graduation rates, transfer to four-year institutions, and length of enrollment before graduation" (p. 56).

> The success of community colleges has been linked to two phenomena: 1) a change in the structure of the economy which necessitates a demand for personnel in such areas as data processing and the health semi-professions and 2) an American ideology regarding equality of opportunity through education. Karabel and others have argued that community colleges are an expression of the dual historical patterns of class-based tracking and educational inflation. The culture forged at the community college is a group culture. As individuals, students enter the institution with the intention of escaping the underclass. (Weis, 1985, p. 134 - 135).

According to Eaton (1994, p. 2), a key test of college-level study is whether or not courses and programs are mobile—that is transferable from one institution to another. College level competence, a key commitment for the collegiate community college, requires a liberal arts or career education that routinely carries degree credit and is transferable. According to Eaton (1994, pp. 120 – 121), the community college serves both a horizontal and vertical function. The horizontal function reaching out and encompassing large numbers of individuals in a range of educational experiences – is a dominant theme in both the occupational and community service visions of the community college. The vertical function – reaching up and connecting to other institutional settings of likely importance to community college students – dominates the collegiate role. Concerns raised by Cohen and Brawer (1987) include the following aspects of evaluating the collegiate function of community colleges for the future: 1) institutions maintain the career transfer education, where students use occupational

programs for transfer rather than terminal study is on the increase 2) fewer enrollments in sequences of courses and increased enrollments in courses that are not part of a sequence and thus reducing the ability to bridge the first and second years of study, and 3) expansion of enrollments in remedial education are distracting the community college from its college-level responsibilities.

According to McGrath and Spear (1991, p. 39), the initial success of the transfer function was attained with the most traditional population of students that community colleges had seen. Subsequently, transfer rates dipped precipitiously. Although no well-developed national data base on the transfer process exists, Cohen and Brawer (1982) estimated that fewer than five percent of full and part-time community college students transfer with junior status to four-year institutions; Kintzer and Wattenbarger found declining transfer rates in six of the nine states with large community college systems (1985), and the decline has been most pronounced for minority students. Since many transfer students are now in career programs, a successful transfer function depends less on what specific courses students take than on the strength of the classroom and on the closeness of the fit between the academic culture of the community college and that of the university (McGrath and Spear, 1991, p. 40). A variety of approaches exist to analyze the community college and its transfer function. However, it is important to note that a review of the literature indicates that, in most cases, students who attend a two-year college are less likely to transfer and if they do transfer, the students are less likely to persist and attain a baccalaureate degree. Thus, critics of the community college understandably indicate that the community college serves as a hierarchical educational

institution steeped in socioeconomic and political measures to maintain a divided work force and limit opportunities for social mobility sought by the masses.

Educational Attainment at the National Level

Do students in two-year colleges obtain bachelor's degrees? A review of educational attainment at the national level concerning whether students obtain baccalaureate degrees shows that most students enroll and obtain certificates and associate's degrees, but few progress forward to obtain a baccalaureate degree. Based on Table 13 taken from *The Condition of Education*, a retrospective look at the persistence of beginning postsecondary students indicates that out of a total of 882,000 students with an associate's degree in 1991, only 0.1 percent had obtained a bachelor's degree by 1998.

Table 13

Persistence of Beginning Postsecondary Students,

Number of 1995 – 96 Beginning Postsecondary Students Enrolled and Percentage

Distribution According to Attainment by 1991, by Initial Goal and Transfer Status

		Highest degree attained by 1998 // No degree, still Enrolled					
Initial Goal and Transfer Status	# Enrolled (thousands)	Cert. %	Assoc. %.	Bacc. %	Less-than 4 yr. %	4 yr. %	Not enrolled %
Total[1]	3,321	10.4	5.1	0.3	17.2	34.6	32.3
Certificate[2]	469	51.7	2.0	([3])	8.2	1.6	46.5
Did not transfer	430	52.3	1.6	---	6.7	0.9	38.5
Upward or lateral transfer	35	41.2	7.5	([3])	24.9	10.1	16.4
Associate's degree	882	6.2	14.5	0.1	31.6	6.6	41.1
Did not transfer	710	6.2	9.3	---	34.3	2.4	47.8
Downward transfer	19	21.4	8.3	---	33.2	---	37.2
Upward or lateral transfer	153	4.4	39.3	0.4	18.6	26.8	10.5
Bachelor's degree or transfer	1603	1.5	2.7	0.7	12.5	63.2	19.4
Did not transfer	1217	1.3	2.2	0.9	8.7	65.3	21.7
Downward transfer	96	5.1	3.1	---	60.6	12.1	19.1
Lateral transfer	289	1.0	4.8	0.2	12.7	71.5	9.8

Legend:
--- Not Applicable
[1]Includes students without a specific degree goal.
[2]Includes a small number with a downward transfer.
[3]Value less than 0.05 percent.
The Condition of Education 2001, National Center for Education Statistics, Digest of Education Statistics, 2001, NCES 2002 – 130, U.S. Department of Education, Office of Educational Research and Improvement, Washington, D.C., p. 147.

Although the persistence and transfer of students from one degree level to another confirm prior research concerning the lack of or decrease in baccalaureate attainment, a historical summary of students and degrees in colleges and universities suggests that, as a whole, more individuals are seeking higher education opportunities than in the past. Table 14 below provides a historical summary of degrees conferred over time from the late 1960s to 2000. The data indicate that more women than men are obtaining degrees both at the baccalaureate and associate degree levels. Such information also intersects with the fact that more women are attending college than previously in the country's history.

Table 14

Historical Summary of Students and Degrees in Degree-granting Institutions: 1969-70, 1979-80, 1989-90, 1998-99, 1999-2000

Earned Degrees Conferred	1969-70	1979-80	1989-90	1998-99	1999-2000
Associate, total	206,023	400,910	455,102	559,954	564,933
Men	117,432	183,737	191,195	218,417	224,721
Women	88,591	217,173	263,907	341,537	340,212
Bachelor's, total	792,316	929,417	1,051,344	1,200,303	1,237,875
Men	451,097	473,611	491,696	518,746	530,367
Women	341,219	455,806	559,648	681,557	707,508

Source: Digest of Education Statistics 2001, National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement, NCES 2002 – 130, Washington, D.C., p. 205.

The impact of transfer will be an important area of further study in the near future to ascertain whether access opportunities provide for economic mobility within migrant and immigrant populations. Georgia and other states have experienced an increase in the

number of persons who classify themselves as Hispanic in the population. According to information obtained from *The Hispanic Data Book* as depicted in Table 15, the number of four-year college graduates is currently being tracked for all persons of Hispanic descent based on the collection of information about this specific group of people. Demographically, Georgia is one of several states in the country that has a large Hispanic population. Approximately 14% of the total Georgia populations of persons of Hispanic descent are four-year college graduates.

Table 15

Educational Attainment: Four-Year College Graduates

(Population 25 years and over in Georgia and the United States)

	Georgia	United States
Total population 25 and over who are 4 yr. college graduates	1,260,178 24.30%	44,462,605 24.40%
Hispanic population 25 yrs. + over	213,190	18,270,377
Hispanics 25 yrs. + over who are 4yr. college graduates	28,995 13.60%	1,908,039 10.44%

Legend:
1st line – number of persons
2nd line – number of persons as a percentage rate
Data only includes counties with populations >99,999 and cities with populations > 49,999.
Source: The Hispanic Data book, 2nd Edition, Grey House Publishing, Millerton: NY, p. 781and p. 819.

Degrees Conferred by Level and Institution in the University System of Georgia

In terms of degree attainment within the University System of Georgia, the system confers an average of 3,727 associate degrees as compared to 18,961 baccalaureate degrees over a six year span of reports concerning degrees conferred as reported in the *Information Digest (1988-1989, 1989-1990, 1994-1995, 2000-2001, 2002 -2003, and 2005-2006)* of university system statistics. Table 16 and Figure 4, respectively, provide an institutional breakdown of degrees conferred and a chart depicting differences in total number of degrees at both the associate and baccalaureate levels. Beginning with Dalton State College in the table, two-year and state college institutions offer two-year programs of study leading to the associate's degree; although some two-year colleges within the past two years have changed sectors and mission statements in order to offer targeted baccalaureate degrees that meet specific workforce needs.

Based on a report of degrees conferred reports from summer 1987 through spring 2005, total degrees conferred at the associate's degree level remained relatively stable at just under 5,000. However, the system has experienced an increase in the total number of bachelor's degrees conferred with a significant increase occurring between spring 2002 (20,000 degrees conferred) and spring 2005 (25,000 degrees conferred). Figure 4 and Table 16 that follow on the next pages provide visual and specific metrics associated with this increase in the number of degrees awarded at the baccalaureate level.

Figure 4

University System of Georgia, Degrees Conferred, Bachelor's and Associate Degrees

Sumer 1987 to Spring 2005

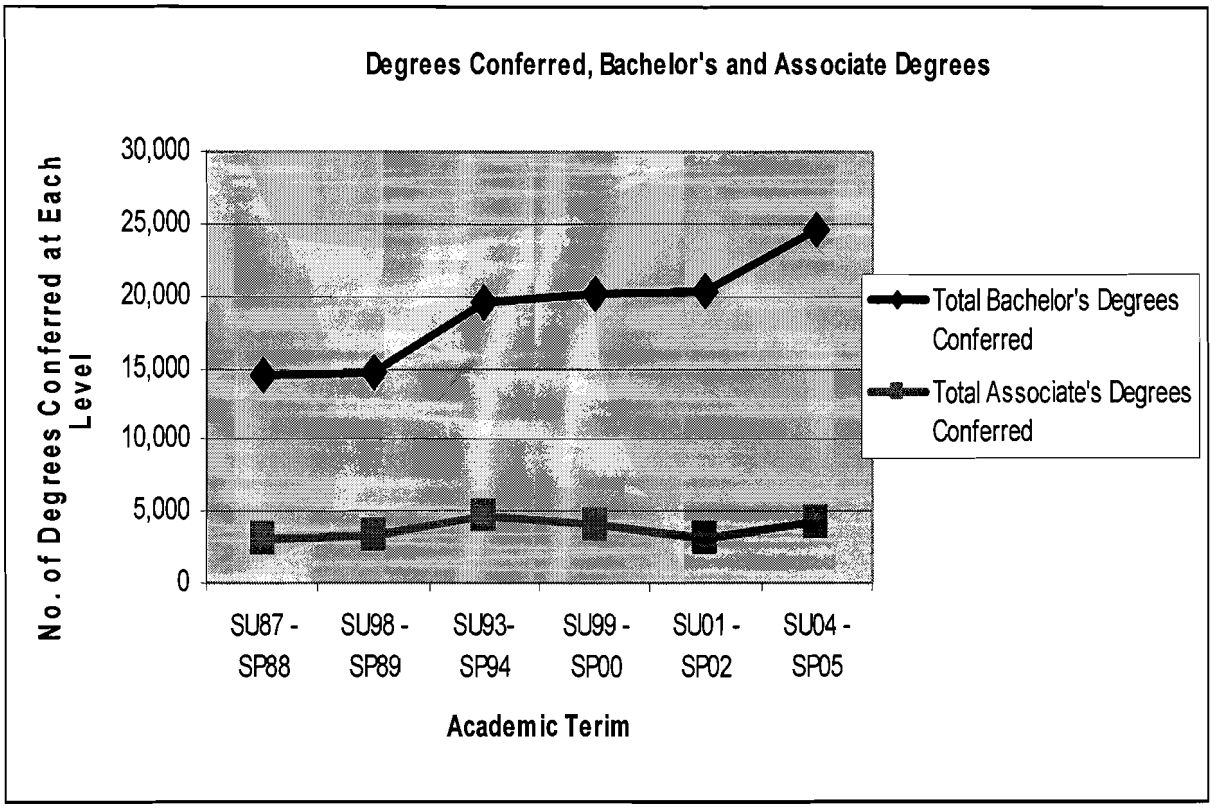


Table 16

University System of Georgia, Degrees Conferred, Bachelor's and Associate Degrees Sumer 1987 to Spring 2005

Institution	SU87 - SP88	SU98 - SP89	SU93- SP94	SU99 - SP00	SU01 - SP02	SU04 SP05
Research Universities ↓						
Georgia Institute of Technology	1705	1711	1885	2027	2157	2512
Georgia State University	2137	2166	2697	2628	2530	3339
Medical College of Georgia	298	249	363	336	314	342
University of Georgia	3664	3706	4939	4867	5392	6097
Regional Universities						
Georgia Southern University	1066	1084	2083	1857	1697	2172
Valdosta State University	986	996	1173	1314	1201	1390
State Universities↓						
Albany State University	232	226	306	333	365	545
Armstrong Atlantic State University	230	248	446	534	524	656
Augusta State University	373	351	431	416	465	529
Clayton College & State University	242	22	165	351	341	558
Columbus State University	439	415	528	543	479	651
Fort Valley State University	180	188	251	235	219	229
Georgia College & State University	565	613	822	756	644	771
Georgia Southwestern State University	290	281	315	332	312	334
Kennesaw State University	603	715	1139	1619	1590	1908
North Georgia College & State University	363	354	521	575	550	669
Savannah State University	180	193	278	250	229	286
Southern Polytechnic State University	447	442	422	375	377	427
State University of West Georgia	695	668	839	870	930	1136
State Colleges ↓						
Dalton State College	140	161	313	276	172	170
Macon State College	294	298	464	236	182	276
Two-Year Colleges ↓						
Abraham Baldwin Agricultural College	353	276	468	439	220	279
Atlanta Metropolitan College	116	187	175	95	121	155
Bainbridge College	68	61	95	74	39	57
Coastal Georgia Community College	153	140	210	134	96	108
Darton College	282	289	346	331	191	226
East Georgia College	48	44	73	79	77	91
Floyd College	126	113	322	218	82	165
Gainesville College	255	286	415	323	361	513
Georgia Perimeter College	587	691	891	931	878	1269
Gordon College	192	224	328	322	302	338
Middle Georgia College	278	233	295	240	214	278
South Georgia College	149	140	230	197	93	144
Waycross College	69	61	115	140	79	97

Students transfer in and outside of the university system to meet their educational needs as well as to find a suitable means of continuing their education based on specific life circumstances. Based on aggregate reports of undergraduate student transfer, as shown below in Table 17, approximately 50% of all transfer activity occurs within the university system, an average of 35% of students transfer to an out-of-state institution, and at least 15% transfer to a college or university in Georgia that is not a part of the university system. This would include private institutions, proprietary institutions, and out-of-state institutions that have established satellite campuses in the state. Recently, the university system has begun tracking whether students transfer from a university system institution to one of the state's technical colleges. Recent data indicate that approximately 8% of students during year 2004 – 2005 transferred to a technical college as part of the Department of Technical and Adult Education System (DTAE).

Table 17

Undergraduate Student Transfer Reports
(Aggregate Information)

Academic Year	Total Transfers into USG Instit	In-State, Other System Instit. %	Out-of-State %	Non-System Instit. In GA%	DTAE
1996 – 1997	30,618	50	36	14	N/A
1997 - 1998	28,392	48	39	13	N/A
2000 - 2001	25,585	49.3	35.5	15.2	N/A
2001 - 2002	28,010	47.8	36.5	15.7	N/A
2002 - 2003	31,217	47.4	33.2	19.4	N/A
2003 - 2004	32,470	47.6	32.2	20.2	N/A
2004 - 2005	32,130	50.3	31.5	10.7	7.5

Source: Summary Transfer Feedback Reports, Board of Regents, University System of Georgia

A more in-depth review of aggregate transfer activity reveals the receiving institution patterns of within university system transfer activity for students disaggregated by race/ethnicity. Tables 18 through 20 provide aggregate information concerning where students attend upon transfer. Research Universities show a large transfer in of Asian and Caucasian/White students, while African-American/Black students are found in large numbers at state universities and two year colleges. Part of this trend may also be explained by the fact that the state's historically black colleges & universities (HBCU) are part of the state university category and at least one two-year college is classified as a predominantly Black institution (PBI).

Table 18
Inter-Institutional University System Transfer Disaggregated by Race/Ethnicity Academic Year 2001 – 2002

Race/Ethnicity	Research U.	Regional U.	State U.	State Colleges	Two-Year Colleges
Asian/Pacific Islander Females	176	4	43	3	44
Asian/Pacific Islander Males	186	7	47	2	55
American Indian and Alaskan Native Males	6	0	6	0	2
American Indian and Alaskan Native Females	6	4	7	0	0
Hispanic/Latino Females	54	6	27	1	29
Hispanic Latino Males	40	4	28	0	18
Black Females	359	169	663	70	24
Black Males	190	76	310	42	247
White Females	1825	661	1720	181	1018
White Males	1501	519	1161	156	770
Multi-racial Males	125	11	38	3	25
Multi-racial Females	142	12	40	0	37

Source: Summary Transfer Feedback Report 2001 - 2002, Board of Regents, University System of Georgia

Table 19

Inter-Institutional University System Transfer Disaggregated by Race/Ethnicity

Academic Year 2002 – 2003

Race/Ethnicity	Research U.	Regional U.	State U.	State Colleges	Two-Year Colleges
Asian/Pacific Islander Females	199	6	63	0	43
Asian/Pacific Islander Males	182	7	60	2	53
American Indian and Alaskan Native Males	7	1	4	0	3
American Indian and Alaskan Native Females	4	2	8	1	1
Hispanic/Latino Females	65	10	44	2	21
Hispanic Latino Males	49	8	39	1	15
Black Females	414	169	824	99	667
Black Males	235	119	342	42	220
White Females	1871	715	1999	203	1061
White Males	1483	539	1382	132	810
Multi-racial Males	149	12	31	1	31
Multi-racial Females	222	14	66	4	50

Source: Summary Transfer Feedback Report 2002 - 2003, Board of Regents, University System of Georgia

Table 20

Inter-Institutional University System Transfer Disaggregated by Race/Ethnicity

Academic Year 2003 – 2004

Race/Ethnicity	Research U.	Regional U.	State U.	State Colleges	Two-Year Colleges
Asian/Pacific Islander Females	175	9	61	2	48
Asian/Pacific Islander Males	207	10	60	5	49
American Indian and Alaskan Native Males	7	3	4	0	0
American Indian and Alaskan Native Females	2	1	8	1	4
Hispanic/Latino Females	57	11	58	5	23
Hispanic Latino Males	40	5	45	2	22
Black Females	382	214	953	111	717
Black Males	202	112	352	47	253
White Females	63	5	54	1	45
White Males	1648	562	1469	147	831
Multi-racial Males					
Multi-racial Females	92	10	80	3	56

Source: Summary Transfer Feedback Report 2003 - 2004, Board of Regents, University System of Georgia

Preparation for Dissertation Research

In preparation for the dissertation research, dissertations were identified that focused on transferability in community colleges. Using the keywords of transfer, student, and community college, a search of Galileo, Georgia's on-line library database tool, provided a list of dissertations identified by the *Community College Journal of Research and Practice* (Table 21 see next page). Although much research has been conducted with a focus on the community college, the dissertations listed were not relevant to this particular study.

Table 21

Dissertations Focusing on Transfer Students in Higher Education

Author	Date of Study	School	Topic
Abbott, B. G.	2005	New Mexico State University	Student Support Services
Bensing, R. M.	2005	New Mexico State University	National Sample Comparison Rates
Backstorm, R. J.	2004	University of Iowa	Teacher's Experiences
Cameron, C.S.	2003	University of Toronto	Collaborative Program
Bonneau, D. D. C.	2004	University of South Carolina	Learning Disabilities
Caton, C. D.	2005	New Mexico State University	Leadership Skill
Chiriboga-Hahn, C.	2003	University of San Diego	Administrative Leadership
Clark, G. D.	2004	University of Southern California	Student Leadership Development
Cohen, S. L.	2003	University of San Francisco	Organizational Culture
Dowd, B. A.	2003	University of San Diego	Accountability
Duren, R. N.	2005	Wilmington College	Distance Learning
Floyd, J. A.	2005	The University of Alabama	Managers and Gender
Graziano, R.	2003	Hofstra University	Learning Strategies
Guillermo, M.S.	2003	University of San Diego	Student Disabilities
Hawkins, S. N.	2004	North Carolina State University	Trustee Boards
Holt, D. J.	2003	Texas A&M University	Leadership
Hopkins, R. A.	2003	Cornell University	Adult Mentoring
Hurley, P. A.	2004	University of California, Los Angeles	Transfer Services
Jones, B. R.	2004	University of Nebraska-Lincoln	Professional Development
Kossman, S. P.	2003	Illinois State University	Reverse Transfer
Long, A. C.	2004	Oregon State University	Attrition
Martin, S. C.	2005	The George Washington University	Multicultural Competence
O'Laughlin, J. M.	2003	Claremont Graduate University	Tribal Colleges

Table 21 (continued)

Dissertations Focusing on Transfer Students in Higher Education

Oleks, J. C.	2004	University of Massachusetts, Boston	Electronic Engagement
Patterson-Cross, K.	2003	Harvard University	Student Persistence
Rechebei, E. D.	2003	University of San Diego	Political Leadership
Reece-Baylard, D. C.	2003	Claremont Graduate University	Alienation
Robertson, V. R.	2003	Illinois State University	Adult Learning
Rocks, W. R.	2005	West Virginia University	Faculty and Student Engagement
Roopsuwankun, P.	2003	Illinois State University	Student Satisfaction
Smith, E. J.	2003	Portland State University	Finance (Loans)
Springer, J. A.	2004	Florida International University	Adjunct Policies
Stanyon, W. M.	2003	University of Toronto	Degree Completion
Surplus, E.	2005	Rowan University	Learning Strategies
Taylor-Sawyer, S.	2005	New Mexico State University	Transformational Leadership
Tilson, H.L.B.	2003	Drexel University	Adult Learners
Ulloa-Health, J.M.	2003	University of San Diego	Leadership
Williams, A.	2003	New York University	Distance Education
Williams, I. R. C.	2004	University of San Francisco	Counseling and Advising
Zeszotarski, P.	2003	University of California	Globalization
Zoellner, G. E.	2005	Oklahoma State University	Social Networks and Orientation

A variety of challenges have emerged through a review of the literature with regard to transfer students in higher education. One of the core issues concerns degree attainment. Degree attainment, or the lack thereof, could disproportionately impact students of color and women in the community college given that a large and substantial representation of students who fit this demographic initially enroll at the two-year college level. Students who begin their postsecondary studies at a community college have lower projections for completion and/or transfer than students who begin at a four-year college

or university (Wellman, 2002; Prager, 1995; Choy, 2002; and Lee and Frank, 1990; Velez, 1985; and Christie, 1998). Other challenges associated with degree attainment involve the conflict between student academic and non-academic factors on persistence (Cejda and Rewey, 1998; Cohen and Brawer, 1987; McGrath and Spear, 1991; Seidman, 1985; Dougherty, 1987; and Lee and Frank, 1990; Kane and Rouse, 1999). These factors include work obligations, caregiver responsibilities, peer-group support, institutional services, mentors (professional and faculty), and pre-entry attributes associated with student maturation, development, and preparation for college. Transfer challenges include the fact that the direction of transfer and whether students transfer upon completion of an associate's degree or institutional core curricula are not easily tracked in systems and between institutions (Townsend and Twombly, 2001; Eaton, 1994; and Kintzer and Wattenbarger, 1985, Quanty et. al., 2004). Research areas for further study that could add to the literature include whether these non-completion patterns of postsecondary study are a result of student choices or factors beyond students' control inclusive of the acceptance of course credit and circumstances that may arise through the navigation process from the community college to a four-year college or university.

CHAPTER 3

METHOD

This research study focused on the impact of pre-transfer grade point average on post-transfer grade point average between 15 two-year, public colleges and 19 public four-year colleges and universities in the state of Georgia. This sample was selected because according to national reports and the research literature, the two-year to four-year transfer success of students has a direct impact on their ability to compete in the academic marketplace, engage in post-college opportunities, and progress through the academic pipeline to attain professional and liberal arts degrees. In addition, this sample was used because there is a dearth of reports that focus on student level transferability and degree attainment across the two-year college sector versus mean, gross enrollment data for the two-to-four year transfer function that primarily uses grade point average. Another factor in the decision to focus on this sample was the accessibility of the institutions as well as longitudinal data sets for which such information is collected inclusive of grade point average and degree attainment at the associate and baccalaureate levels. Specifically, the study addressed the following questions: 1) Can pre-transfer grade point average be used to predict post-transfer grade performance? and 2) What is the strength of the predicted relationship?

This study can be described as a quantitative approach to studying transfer in the university system. The selection of Georgia's public colleges and universities was prompted by the recent emphasis by the Board of Regents on retention, progression, and graduation. In addition, the University System has begun to focus on access issues for minority groups, women, and immigrants. Issues that are beyond the scope of this study involve the analysis of articulation and transfer policies at individual institutions and whether transfer ombudsperson recommendations further enhance or diminish access and degree achievement opportunities.

Instruments

The research employed the use of linear regression to test the strength and relationship of pre-GPA at a two-year college on post-GPA at a four-year college or university. For the purposes of this study, pre-and-post GPA were referenced as the predictor and criterion variables. Approval was sought from the Board of Regents, Office of Academic Affairs senior administration to obtain the data. Approval was granted to obtain the data and to work further through the Office of Strategic Research and Analysis to decrease the amount of programming time required to extract the data. Those actions were taken and the individual, student level data points listed below were extracted from the Student Information Reporting Systems (SIRS) database for the fifteen two-year college institutions of the University System of Georgia for the first-time freshmen cohort of fall 1998. Each student was identified only by an arbitrary sequential number. In addition to indicating whether a student was classified as part-time or full-

time, each data strand included the institution name, gender, and ethnicity for each student. The following data points were reported: pre- GPA prior to transfer at a two-year institution, cumulative hours earned prior to transfer, receipt of an associate's degree, receiving institution or institution accepted to after transfer, post-GPA second term after transfer, cumulative hours earned second term after transfer, post-GPA fourth term after transfer, cumulative hours earned fourth term after transfer, post-GPA seventh term after transfer, cumulative hours earned seventh term after transfer, and receipt of a baccalaureate degree.

To organize the information, the data file was provided in a Microsoft Excel® format. The data file was converted to SPSS® to run the statistical analysis on the disaggregated data to provide a demographic portrait of students inclusive of ethnicity and gender. In this study, confidentiality matters were addressed by cleaning the data in order to not include student identifiers such as name or social security number. This study's basic design reduces the effects of key components of researcher bias because no contact was made with students and their grade point averages were not rated. Although pre-GPA and post-GPA transfer were tested to determine if a relationship exists and the strength of the relationship between grade point averages over time, causality was not inferred. Further study would need to be undertaken that is beyond the scope of this research to determine if pre-GPA and post-GPA along with other factors such as organizational attributes, social and academic integration, and student transition characteristics combined together in an experimental research design draw a causal relationship between grade point averages at the beginning of one's academic career or

the associate's degree level and transfer with later baccalaureate degree attainment. Another form of bias inherent in the study is the assumption that grade point averages and cumulative hours earned during various points of a student's academic career are measured without error. Thus, any conclusions made concerning the strength of the relationship between pre-GPA and post-GPA after transfer will, in effect, underestimate the strength of the relationship based on the sample studied and other factors associated with successful student transfer and academic matriculation.

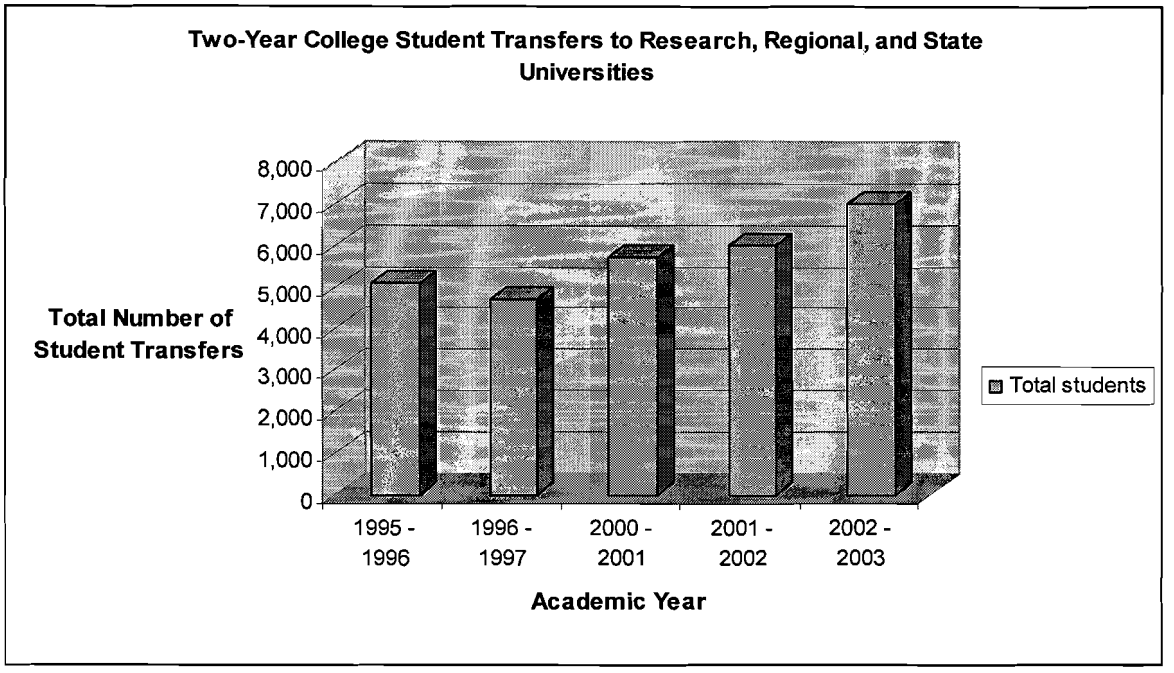
Other studies conducted on this topic such as Cejda and Rewey's (1998) used grade point averages as predictor and criterion variables in a case study assessing the effect of academic factors on transfer student persistence from a community college to a liberal arts college. The reliability of the study, the extent the measure would be the same if repeated, would enable one to test soundness of the research because the data acquired for the specific time periods would not change upon collection for the same cohort. The accuracy of the study, or the extent to which the measurement comes to being error free, would be determined by the efficacy of the data and controls stated in the research for those variables that are not a part of the research such as the non-academic factors that enable student academic success in a postsecondary setting.

Although some research has focused on transfer rates at two-year and four-year women's colleges and shown that "their transfer rates compare favorably with those found at other two-year colleges," this study does not include such institutions (Townsend, 1999, p. 68). The sample for this study includes only public, two-year and four-year institutions in the state of Georgia. None of these public institutions are

classified as women's colleges. Women's colleges do exist in Georgia, but primarily in the private sector. Following Bers and Calhoun's (2002) discussion of Adelman's 1999 study of college attendance patterns and baccalaureate attainment, this study will use the two-year college as the initial entry point into higher education to determine the percentage and demographic makeup of two-year college students who transfer to four-year colleges and universities. Using this criterion, Adelman found a transfer rate of 26 percent that is somewhat higher than that determined by the Center for the Study of Community Colleges' National Transfer Assembly Project (NTAP) (Bers and Calhoun, 2002, p. 16). It was determined that a University System transfer rate would be obtained through focusing on the incoming fall 1998 students and following their progression through summer 2005. The timeframe, fall 1998 through summer 2005, was used as a reasonable timeframe in order to capture information concerning students who graduated both within four and six years of entering a state or research university. The timeframe for extracting the data provided specific information concerning whether students obtain an associate's degree. Based on summary transfer aggregate data, Figure 5 on the following page depicts within-system transfers from two-year colleges to research, regional, and state universities for the years 1995 – 1996, 1996 – 1997, 2000 – 2001, 2001 – 2002, and 2002 – 2003. A review of the aggregate data indicates that student transfer activity has increased from 5,000 students to 7,000 students moving from the two-year college to four-year university level.

Figure 5

Two-Year College Transfers to Research, Regional, and State Universities



Source: Summary Transfer Feedback Reports, University System of Georgia, 1995 – 1996, 1996 – 1997, 2000 – 2001, 2001 – 2002, 2002 – 2003.

Over time, between academic years 1996 and 2003, two-year colleges have increased the number of student transfers to system institutions that offer baccalaureate degrees. As within system transfer activity has increased since academic year 1995 – 1996, so has the percent of all within system transfer that has occurred primarily between two-year colleges and other four-year institutions as shown in Tables 22 and 23 on the following pages. Thus, within system transfer activity from two-year colleges to baccalaureate degree granting institutions is increasing and the object of this study is to

determine the relationship and direction of grade assessment before transfer and after transfer for students in the fall 1998 cohort of the university system.

Table 22

Two-Year College Summary Transfer Aggregate Activity within System

Academic Year	Total Number of Students	% of Total Transfers within the USG
1995 - 1996	5,099	41%
1996 - 1997	4,697	44%
2000 - 2001	5,731	53%
2001 - 2002	6,019	45%
2002 - 2003	7,001	47%

Table 23
Number of Students Transferring Within the University System
Two-Year Colleges to Other USG Institutions

Institutions (Two-Year and those with recent mission changes to State College) ---- Academic Years 1996 through 2005 -----

Two-Year Colleges	1995-1996	1996-1997	1997-1998	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Abraham Baldwin Agricultural College	497	445	383	439	470	558	510	461
Atlanta Metropolitan College	258	220	261	222	224	284	317	309
Bainbridge College	167	165	139	121	169	193	192	187
Coastal Georgia Community College	205	185	186	188	236	241	298	264
Darton College	379	347	353	316	344	404	490	478
East Georgia College	164	142	216	318	387	413	434	314
Floyd College	286	329	333	302	302	391	457	473
Gainesville College	537	435	498	437	463	607	766	1072
Georgia Perimeter College	2152	2112	2251	2168	2122	2454	2537	2808
Gordon College	440	384	477	514	528	606	582	610
Middle Georgia College	512	443	471	350	393	449	429	489
South Georgia College	240	194	250	195	206	244	320	319
Waycross College	220	212	206	161	175	157	140	186
State Colleges								
Dalton State College	251	259	258	200	232	268	254	208
Macon State College	590	443	373	308	287	378	398	418

Note: It is noted that those two-year colleges with larger enrollments also have more students transferring from their institutions. Abraham Baldwin Agricultural College, Darton College, Gainesville State College, Georgia Perimeter College, and Gordon College all have large numbers of students migrating from their institutions to other four-year universities within the system.

Transfer activity in Georgia may not reflect national trends as discussed in Levinson's (2005) review of Bradburn and Hurst's analysis of the 1990 Beginning Postsecondary Students Longitudinal Study (BPS). Levinson (2005) indicates that Bradburn and Hurst's BPS estimates of student expectations concerning a baccalaureate degree and the percentage of students transferring to a four-year institution are higher than estimates based on other data sets (p. 34). Levinson suggests that this increased estimate was based on how Bradburn and Hurst defined transfer, which in this case restricted the pool and only included students who had an academic major and were taking courses leading to a bachelor's degree.

Definitions of Transfer Rate

Efforts to calculate a national transfer rate include the work of the National Effective Transfer Consortium (NETC), in which the definition of transfer was "the number of transfers divided by the number of non-enrolling students" (Bers and Calhoun, 2002, p. 17). Definitions of transfer students vary based on time of transfer, number of credit hours attempted, attainment of an associate's degree, and number of credit hours transferred. The variability in calculating transfer rates is further detailed in Townsend's (1999) analysis of the criteria for evaluating institutional success. According to Townsend (1999), two major definitions for transfer rate exist: "1) the percentage of students who transfer after completing a two-year degree, and 2) the percentage of first-time college students who begin at a two-year school and transfer at least 12 credits to a public, four-year school within the state within a four-year time period" (p. 226).

Similarly, the Center for the Study of Community Colleges defines transfer rate as "all students entering the community college in a given year who have no prior college experience and who can complete at least 12 college-credit units, divided into the number of that group who take one or more classes at an in-state, public university within four years" (Cohen and Brawer, 1996, p. 2). For the purposes of this study, the University System definition of transfer was used to guide the research because transfer accountability varies between and among states. According to the University System of Georgia's Academic Affairs Handbook,

> Students with fewer than 30 transferable semester credit hours must meet freshman admission requirements. Students who have earned 30 or more semester hours of transferable credit may transfer to a University System institution if they meet the sector requirements. Students who have earned 30 or more semester hours must have completed any LS and CPC deficiency requirements. Depending on the sector of the institution to which students transfer, students must meet the transfer grade point average of a particular sector (e.g., research universities, regional and state universities, state colleges and two-year colleges) and any additional institutional requirements. For admission purposes, the transfer student's admissibility is determined by his/her cumulative transfer GPA based on all normally transferable attempted hours from all post-secondary institutions previously attended as calculated by the receiving institution. (University System of Georgia, Academic Affairs Handbook, Section 3.01.02)

In addition, the University System of Georgia defines non-traditional transfer students as those who meet the following criteria: 1) have been out of high school at least five years or whose high school class graduated at least five years ago, and 2) have earned 30 or more transferable hours of college credit (University System of Georgia, Board Policy Manual, Section 402.01.03). The distinction between traditional and non-traditional transfer students is an area for further research. For the purposes of this investigation, data used in the analyses concerned first-time-freshmen with no delineation of the number of years out of high school.

Model

The model used in this research employed regression analysis conducted on all students and the use of multiple regression to capture the inclusion of categorical variables involving gender and race/ethnicity. The variables used in this research will consist of pre-transfer grade point average, post-transfer grade point average at two terms after transfer, post-transfer grade point average at four terms after transfer, post-transfer grade point average at seven terms after transfer, gender as a dichotomous variable, and race/ethnicity along six sub-groups. Table 24 below depicts the model used for this research:

Table 24

Statistical Research Model

Model Used	Number of Subjects	Independent Variable(s)	Dependent Variables
Regression	N = 249	Pre-GPA	Post-GPA at 2 terms Post-GPA at 4 terms Post-GPA at 7 terms
Multiple Linear Regression	N = 249	Men, n = 131 Women, n = 118 Pre-GPA	Post-GPA at 2 terms Post-GPA at 4 terms Post-GPA at 7 terms

Specific tests of certain sub-groups will not be amenable to this research due to the small number of representative cases for Asian/Pacific Islander, Hispanic/Latino, Multicultural, and Indian/Native American students. Likewise, the juxtaposition of gender with race/ethnicity created small sub-groups for which statistical analysis was not feasible. Specifically, few subjects were available to test the hypothesis for the following groups: Asian/Pacific Islander males and females, Black/African-American males, and Hispanic/Latino males and females. Analysis of sub-groups was restricted to a differentiation based on gender and few groups, specifically women (e.g, whites, blacks), where gender and race/ethnicity are used in the overall analysis.

CHAPTER 4

STATISTICAL ANALYSIS

Chapter Introduction

This chapter, using data provided by the Board of Regents, will focus solely on the analysis of student grade point averages to ascertain whether a relationship exists and the strength of the relationship. Previous chapters cited models that have been used in other contexts with regards to evaluating transferability and transfer effectiveness. This chapter reviews the statistical analysis employed and the model used to test the hypotheses.

Hypothesis Revisited

Regression analysis was used to address the following issues as stated previously: the projection of post-transfer grade point average as a result of using pre-transfer grade point average as a predictor and the strength of the predicted relationship. The null hypothesis of this study was that no relationship exists between pre-transfer grade point average and post-transfer grade point average. The research hypothesis states that a relationship exists between the pre-transfer grade point average and post-transfer grade point average. Alternatively, another research hypothesis states that the pre-transfer grade point average for all students transferring from University System of Georgia two-year colleges to University System of Georgia state universities

will have a significant positive relationship with the post-transfer grade point average after two, four, and seven terms following transfer.

The hypotheses are presented below:

H_0: μ pre-GPA = μ post-GPA
H_1: X pre-GPA $\neq$ X post-GPA
H_2: X pre-GPA > X post-GPA

A significant positive relationship follows the work of Best and Ghering (1993) whose research on grade point averages, dismissal rates, and graduation rates in Kentucky showed that students who transferred into upper-level division work fared better than those who transferred early. Educational attainment at the two-year college level can have an impact on student educational attainment at the four-year college level. According to Cohen and Brawer (2003, p. 64), at least during the first term, students experience a decline in grade performance upon transfer.

Descriptive Statistics of Raw Data File

The raw data file source as obtained from the Student Information Reporting System (SIRS) Data, University System of Georgia, of the fall 1998 cohort of first-time freshmen seeking associate degrees at University System of Georgia two-year colleges contained 8,093 student records. The file included data through summer 2005. Based on this file over half of the students were women, 55.5% (4,488 cases) and the remainder of the cohort were men, 44.5% (3,605 cases). Table 25 on the following page displays descriptive statistics of the students according to ethnic group.

Table 25

Students Disaggregated by Ethnic Origin
(Raw Data File)

Ethnic Group	Number	Percent
Asian/Pacific Islander	231	2.9%
Black/African-American	1,950	24.1%
Hispanic/Latino/a	144	1.8%
Indian/Native American	21	.3%
Multicultural	90	1.1%
White/Caucasian	5,657	69.9%
Total	8.093	100%

Based on state demographics and students entering the two-year college sector, it is noted that the majority of students at two-year colleges consist of Caucasian/White students and African-American/Black students with smaller enrollments of Asian/Pacific Islander, Hispanic/Latino/a, Indian/Native American, and Multicultural students. Descriptive statistics were manipulated for the transfer grade point averages and hours earned in order to ascertain student progress at two, four, and seven terms after transfer for the full data file. Unfortunately, the descriptive statistics representing the full data file included those cases with missing data, or rather, those students whose grade point averages were not captured in the system. Table 26 on the following page displays this information.

Table 26

Transfer GPA and Hours Earned – Mean Scores
(Raw Data File)

GPA and Hours Earned At Specific Semester Points	Mean	Min.	Max.	Std. Deviation
Grade Point Average				
Transfer GPA Earned 2 semesters out	.4826	.00	4.00	1.0952
Transfer GPA Earned 4 semesters out	.2908	.00	4.00	.8811
Transfer GPA Earned 7 semesters out	.0941	.00	4.00	.5186
Credit Hours				
Transfer Hours Earned 2 semesters out	6.04	0	115	16.537
Transfer Hours Earned 4 semesters out	4.85	0	140	16.256
Transfer Hours Earned 7 semesters out	2.14	0	135	12.504

An initial review of the raw data indicates that students earned approximately six hours of credit with a .48 grade point average at least two semesters after transfer. This includes all students regardless of transfer status in terms of hours earned before transfer and whether students are classified as non-traditional or traditional students. Over time, students earned fewer hours after transfer and earned lower grades as depicted at four semesters and seven semesters after transfer. Based on a summative review of other data points provided, it was found that a majority of the students transferred from those two-year colleges with larger enrollments.

As depicted in Table 27, over 500 students transferred from the following institutions: Abraham Baldwin Agricultural College, Darton College, Gainesville State College, Georgia Perimeter College, Gordon College, and Middle Georgia College.

Table 27

All Two-Year Colleges Transferring Students
(Raw Data File)

Transferring Institution	Frequency	Percent
Abraham Baldwin Agricultural College	836	10.3%
Atlanta Metropolitan College	342	4.2%
Bainbridge College	199	2.5%
Coastal Georgia Community College	156	1.9%
Darton College	631	7.8%
East Georgia College	384	4.7%
Gainesville State College	789	9.7%
Georgia Highlands College	534	6.6%
Georgia Perimeter College	2,155	26.6%
Gordon College	877	10.8%
Middle Georgia College	624	7.7%
South Georgia College	372	4.6%
Waycross College	194	2.4%
Total Cases	8,093	100%

Descriptive statistics were reviewed to determine which four-year colleges and universities received the most two-year college transfer students. As depicted in Table 30, institutions with over 100 two-year transferees included Georgia Southern University, Georgia State University, the University of Georgia, and Valdosta State University. The table does not represent 100% of all transfers due to some drop-outs and stop-outs and missing data points relative to student transfer in the full data file. Out of 8,093 students, at least 6,530 are not accounted for in terms of documenting transfers out of the two-year college according to frequencies reviewed on receiving institutions (see Table 28).

Table 28

Frequency of Institutions Receiving Two-Year College Transfer Students

Four-year College or University Receiving Institution	Frequency	Percent
University of Georgia	293	3.6
Georgia State University	276	3.4
Georgia Southern University	175	2.2
Valdosta State University	174	2.2
North Georgia College & State University	90	1.1
Kennesaw State University	80	1.0
University of West Georgia	79	1.0
Clayton State University	55	.7
Georgia College & State University	50	.6
Georgia Institute of Technology	45	.6
Georgia Southwestern State University	40	.5
Southern Polytechnic State University	41	.5
Macon State College	39	.5
Albany State University	36	.4
Columbus State University	27	.3
Armstrong Atlantic State University	23	.3
Augusta State University	12	.1
Gainesville State College	10	.1
Fort Valley State University	6	.1
Savannah State University	6	.1
Dalton State College	5	.1
Medical College of Georgia	1	.0

University System Data Coding and Reporting Issues

Although the data file included 8,093 cases, due to the manner in which data were coded at individual institutions with regard to pre-transfer grade point average and post-transfer grade point average, several cases within the overall file or student data points had to be excluded in order to conduct a regression analysis and other tests in order to avoid missing data. The finding that several data points were missing in key fields was illuminated when all cases were used in an initial regression analysis. The Board of Regents, Office of Strategic Research and Analysis was notified of this reporting and coding error. The Office of Strategic Research and Analysis, in turn, explained that institutional reporting does not mandate that institutions include a pre-transfer grade point average or post-transfer grade points at two, four, and seven terms after transfer in order to enable processing of the student information reporting system (SIRS) or curriculum inventory reporting (CIR) system.

The aforementioned data fields were coded with a "0" by registrars and/or other personnel responsible for SIRS reporting in order to alleviate errors for SIRS processing requirements. Unfortunately, the coding of "0" in grade point average fields is permitted regardless of whether the code is a valid and accurate representation of student grade assessments. A review of both the initial Microsoft Excel® file, SPSS® converted file, and sort of the aforementioned specific data points found that several registrars' offices had inserted zeros for the grade point averages in the SIRS database system. This coding undertaken by registrars or other responsible personnel at both the pre-transfer point and grade calculations after transfer required that certain cases be filtered out of the study.

Personnel accountable for data both within the technical and policy sides of the Office of Strategic Research and Analysis of the University System have been notified of this coding and reporting error and its ramifications for further study of questions pertaining to this research, integrity of the data system upon which policy decisions are being made, and extrapolation of data for additional topics related to this research.

Cleaned Data File Statistics and Analysis

Cases with a code of "0" for grade point average were removed from the study and the resultant data file was reduced from 8,093 cases to a total of 249 cases for which valid grade point averages were represented both before and after transfer where students had earned credit hours. Valid grade point averages have been defined as pre-and-post transfer grade point averages that are greater than zero. The resultant descriptive information was derived after filtering the raw data file such that grade point averages both before transfer and after transfer were greater than zero. The total number of students according to gender resulted in a representation of 52.6% (131) women and 47.4% (118) men. Based on a disaggregation of students according to ethnic code, it was found that the majority of students in the sample were identified as White/Caucasian or Black/African-American.

Inferential statistics on specific groups based on race/ethnicity were not permissible given the small number of students represented. To further disaggregate the data according to both gender and race/ethnicity would require a larger sample in order to maintain power in this research. According to Newton and Rudestam (1999, p. 251), "a

loss in power or shrinkage occurs where the difference between the R^2 based on one sample and the R^2 derived from the same regression equation based on a second sample become smaller." According to Stevens (1999), the power of a statistical test depends on three factors: the alpha level set, sample size, and effect size or the extent to which groups differ in the population on the dependent variable (p. 122). In order for power to equal .80 with alpha =.05, and a population r = .30, a sample size of n = 84 is needed, based on Cohen and Cohen's (1983) description of statistical power (p. 59). Issues of power have an impact on how much student cases were disaggregated into sub-groups, if at all, for this research. The following student sub-groups out of a total of 249 valid cases were not be studied further due to the small number of cases represented: Multi-racial (n = 3), Hispanics (n = 5), Native-Americans – not represented, and Asian/Pacific Islanders (n = 16). Similarly, Gelman and Hill (2007) state that "increasing n decreases standard errors in proportion to $1 / \sqrt{n}$" (p. 438). Additionally, disaggregating the data according to gender and race/ethnicity for the remainder of this research was not possible because of the resultant further decline in the number of cases and potential increase in errors. Specifically, the following groups disaggregated by both gender and race/ethnicity were not studied: Asian/Pacific Islander men and women, African-American/Black men, Hispanic/Latino(a) men and women, and Multicultural men and women. Although a substantial number of African-American/Black women were represented in the cases available, comparative analyses will not be undertaken given the loss of subjects in other student sub-groups. Table 29 and Table 30 below display the demographic makeup of

the students in the sample and represent the limitations of the data if effects were tested based on both gender and ethnicity:

Table 29

Students Disaggregated by Ethnic Origin
(Cleaned Data File)

Ethnic Group	Number	Percent
Asian/Pacific Islander	16	6.4%
Black/African-American	51	20.5%
Hispanic/Latino(a)	5	2.0%
Multicultural	3	1.2%
White/Caucasian	174	69.9%
Total	249	100%

Table 30

Students Disaggregated by Gender and Ethnic Origin

Ethnicity (Number and Percent)

	Asian		Black		Hispanic		Multicultural		White		Total	
Gender												
Males	12	10.2%	16	13.6%	4	3.4%	1	.8%	85	72.0%	131	52.6%
Females	4	3.1%	35	26.7%	1	.8%	2	1.5%	89	67.9%	118	47.4%
Total	16	6.4%	51	20.5%	5	2.0%	3	1.2%	174	69.9%	249	100%

The majority of transfer students are Caucasian/White (69.9%) and the second largest group consists of African-American/Black students (20.5%). Again, descriptive statistics were run for the transfer grade point averages and hours earned in order to ascertain student progress at two, four, and seven terms after transfer for all students in the available sample of 249 cases. Table 31 displays this information. Using filtered data, note that based on Table 31, transfer grade point average increases from a 2.71 grade

point average two terms after transfer to a 2.78 grade point average by seven terms after transfer. Similarly, students earn more credit hours over time from 27.67 hours two terms after transfer to 66.73 hours by seven terms after transfer.

Table 31
Transfer GPA and Hours Earned – Mean Scores
(Cleaned Data File for All Students)

GPA and Hours Earned At Specific Semester Points	Mean	Median	Std. Deviation
Grade Point Average			
Transfer GPA Earned 2 semesters out	2.7157	2.6700	.65884
Transfer GPA Earned 4 semesters out	2.7559	2.6900	.57649
Transfer GPA Earned 7 semesters out	2.7880	2.7100	.57369
Credit Hours			
Transfer Hours Earned 2 semesters out	27.67	22.00	19.80
Transfer Hours Earned 4 semesters out	43.47	40.00	21.63
Transfer Hours Earned 7 semesters out	66.73	65.00	25.36

Similarly, descriptive statistics for grade point averages were run on all students disaggregated by race/ethnicity based on the largest sub-groups available: African-Americans/Blacks and Caucasians/Whites.

Based on Table 32 and Table 33 below, it is reported that grade point averages for students increase over time from a 2.6 grade point average and 30 credit hours at two terms after transfer for African-American students to a 2.8 grade point average at seven terms after transfer and 64 semester credit hours for Caucasian students.

Table 32
Transfer GPA and Hours Earned – Mean Scores
(African-American/Black Students, n = 51)

GPA and Hours Earned At Specific Semester Points	Mean	Median	Std. Deviation
Grade Point Average			
Transfer GPA Earned 2 semesters out	2.6280	2.6000	.59822
Transfer GPA Earned 4 semesters out	2.6627	2.5600	.53115
Transfer GPA Earned 7 semesters out	2.7096	2.6600	.53308
Credit Hours			
Transfer Hours Earned 2 semesters out	30.65	21.00	23.34
Transfer Hours Earned 4 semesters out	49.31	45.00	21.00
Transfer Hours Earned 7 semesters out	72.96	69.00	28.49

Table 33
Transfer GPA and Hours Earned – Mean Scores
(Caucasian/White Students, n = 174)

GPA and Hours Earned At Specific Semester Points	Mean	Median	Std. Deviation
Grade Point Average			
Transfer GPA Earned 2 semesters out	2.7399	2.7000	.68089
Transfer GPA Earned 4 semesters out	2.7908	2.7300	.59145
Transfer GPA Earned 7 semesters out	2.8259	2.8150	.59624
Credit Hours			
Transfer Hours Earned 2 semesters out	26.72	21.00	18.77
Transfer Hours Earned 4 semesters out	41.32	39.00	20.19
Transfer Hours Earned 7 semesters out	64.25	63.00	24.54

Again, descriptive statistics were reviewed to determine which two-year institutions transferred students. As depicted in Table 34 below, a total of 249 students transferred with grade point averages greater than zero before and after transfer for this study. Institutions transferred between 75 and 5 students to other colleges and universities.

Table 34

All Two-Year Colleges Transferring Students
(Cleaned Data File)

Transferring Institution	Frequency	Percent
Abraham Baldwin Agricultural College	28	11.2%
Atlanta Metropolitan College	8	3.2%
Bainbridge College	4	1.6%
Coastal Georgia Community College	6	2.4%
Darton College	21	8.4%
East Georgia College	10	4.0%
Gainesville State College	24	9.6%
Georgia Highlands College	23	9.2%
Georgia Perimeter College	79	31.7%
Gordon College	24	9.6%
Middle Georgia College	10	4.0%
South Georgia College	7	2.8%
Waycross College	5	2.0%
Total Cases	249	100%

Descriptive statistics were also reviewed to determine which four-year colleges and universities were the receiving institutions of two-year college transfer students. As depicted in Table 35 below, institutions that received the top quartile of two-year transferees included Georgia Southern University, Georgia State University, Kennesaw State University, the University of Georgia, and Valdosta State University.

Table 35

Frequency of Institutions Receiving Two-Year College Transfer Students (Cleaned Data File)

Four Year College or University Receiving Institution	Frequency	Percent
Georgia State University	59	23.7%
University of Georgia	28	11.2%
Kennesaw State University	26	10.4%
Georgia Southern University	23	9.2%
Valdosta State University	23	9.2%
North Georgia College & State University	12	4.8%
Southern Polytechnic State University	12	4.8%
University of West Georgia	11	4.4%
Clayton State University	9	3.6%
Albany State University	8	3.2%
Georgia Southwestern State University	8	3.2%
Georgia Institute of Technology	7	2.8%
Columbus State University	4	1.6%
Macon State College	4	1.6%
Armstrong Atlantic State University	3	1.2%
Augusta State University	3	1.2%
Georgia College & State University	3	1.2%
Savannah State University	3	1.2%
Fort Valley State University	2	.8%
Dalton State College	1	.4%
Total Cases	249	100%

Regression Analysis with Filtered Data/Reduced Sample Size

To assess whether the number of cases were sufficient, rules of thumb were used as provided by Newton and Rudestam and Cohen and Cohen. According to Newton and Rudestam (1999, p. 251), "the number of subjects necessary to test a multiple correlation is less than the number necessary to test the individual predictor variables." The following formula was applied for this research: $N \geq 50 + 8k$, where k is the number of independent variables, for testing the multiple correlation, and $N \geq 104 + k$ for testing individual predictors (Newton and Rudestam, 1999, p. 252). A total of 249 cases were sufficient for this analysis. For this analysis, the independent variable of before transfer GPA was used to conduct analysis on the impact of the transfer GPA at two, four, and seven terms after transfer. The data were only further disaggregated by ethnicity for two groups (e.g., African-Americans/Blacks and Caucasians/Whites) to test the relationship of pre-transfer grade point average with grade point averages after transfer. Recognizing the mortality of cases in terms of gender and ethnicity, tests concerning disaggregated groups along both dimensions were insufficient, could lead to standard errors, and thus were not conducted for the purposes of this research. Thus, with the understanding of the level of disaggregated data, the number of cases was sufficient for this analysis.

Variables

Table 36 displays the independent and dependent variables used in this study. While institutional type was a variable of interest, the data set was reviewed in terms of one direction of transfer, namely from the two-year college to a four-year college or university. The independent variable used in this study was pre-transfer grade point average and the dependent variables involved post-transfer grade point average at two, four, and seven terms after transfer. The data points were further disaggregated according to student ethnicity for additional analyses and to determine if effects could be further tested.

Table 36
Variables

Variable	Source	Coding	Use
Gender	Student Information Reporting System (SIRS) Data, University System of Georgia, Fall 1998 Cohort	Male = 0 Female = 1	Independent Variable
Ethnicity	Student Information Reporting System (SIRS) Data, University System of Georgia, Fall 1998 Cohort	Categorical coded according to the following schema: Asian = 1 Black = 2 Hispanic = 3 Indian = 4 Multiracial = 5 White = 6	Independent Variable
Pre-GPA	Student Information Reporting System (SIRS) Data, University System of Georgia, Fall 1998 Cohort	Continuous over range greater than zero to 4.00; Derived from SIRS Data	Independent Variable
Post-GPA at 2 terms	Student Information Reporting System (SIRS) Data, University System of Georgia, Fall 1998 Cohort	Continuous over range greater than zero to 4.00 ; Derived from SIRS Data	Dependent Variable
Post-GPA at 4 terms	Student Information Reporting System (SIRS) Data, University System of Georgia, Fall 1998 Cohort	Continuous over range greater than zero to 4.00 ; Derived from SIRS Data	Dependent Variable
Post-GPA at 7 terms	Student Information Reporting System (SIRS) Data, University System of Georgia, Fall 1998 Cohort	Continuous over range greater than zero to 4.00; Derived from SIRS Data	Dependent Variable

Analysis of All Student Grade Point Averages

A linear regression analysis was conducted to evaluate the prediction of post-transfer grade point average for all students at the second, fourth, and seventh terms following transfer from the overall pre-transfer grade point average. For the prediction of post-transfer grade point average at two terms following transfer, a significant regression equation was found [$F(1,247) = 73.501$, $p < .001$], with an R^2 of .229. Predicted post-transfer grade point average after two terms is equal to 1.032 + .609 (pre-GPA). Similarly, for the prediction of post-transfer grade point average at four terms following transfer, a significant regression equation was found [$F(1,247) = 86.639$, $p < .001$], with an R^2 of .260. Predicted post-transfer grade point average after four terms is equal to 1.188 + .567 (pre-GPA). Likewise, for the prediction of post-transfer grade point average at seven terms following transfer, a significant regression equation was found [$F(1, 247) = 81.132$, $p < .001$], with an R^2 of .247. Predicted post-transfer grade point average after seven terms is equal to 1.266 + .550 (pre-GPA). The scatter plot for all students at two, four, and seven terms after transfer for the independent variable of pre-transfer GPA and dependent variables of post-transfer GPA at two, four, and seven terms after transfer, as shown in Figure 6, Figure 7, and Figure 8 on the following pages, indicates that the variables are linearly related such that as pre-grade point average increases the post-transfer grade point average also increases.

Figure 6

Post Transfer Grade Point Average After Two Terms for All Students

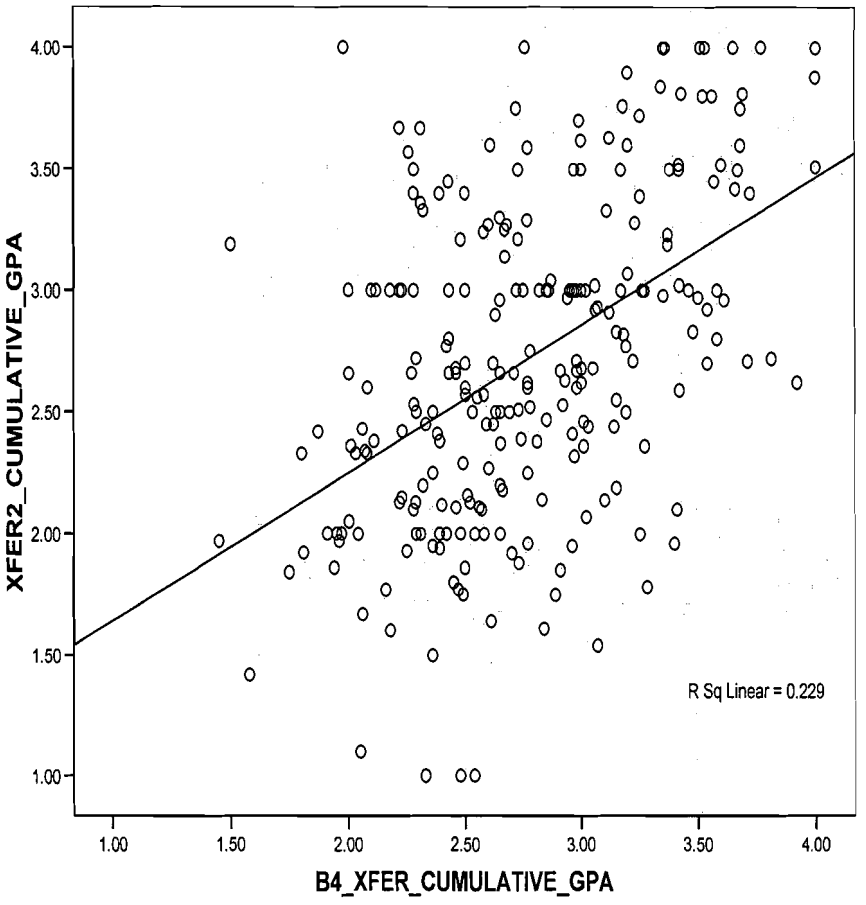


Figure 7

Post Transfer Grade Point Average After Four Terms for All Students

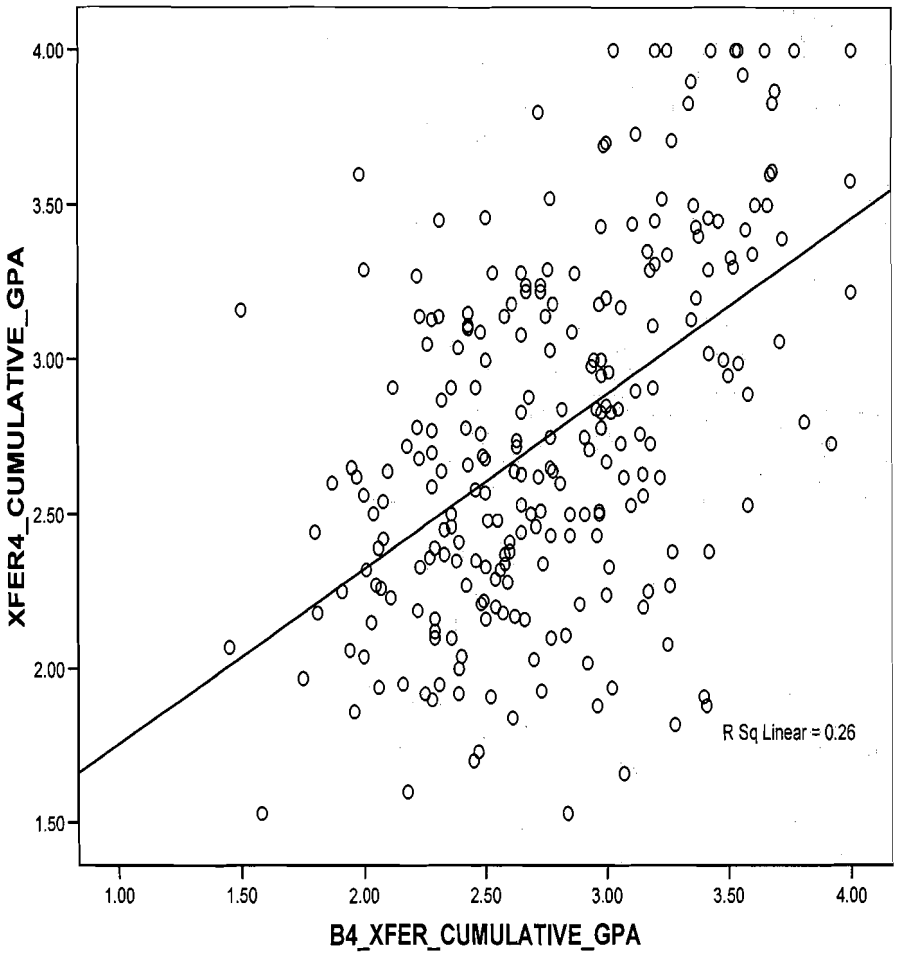
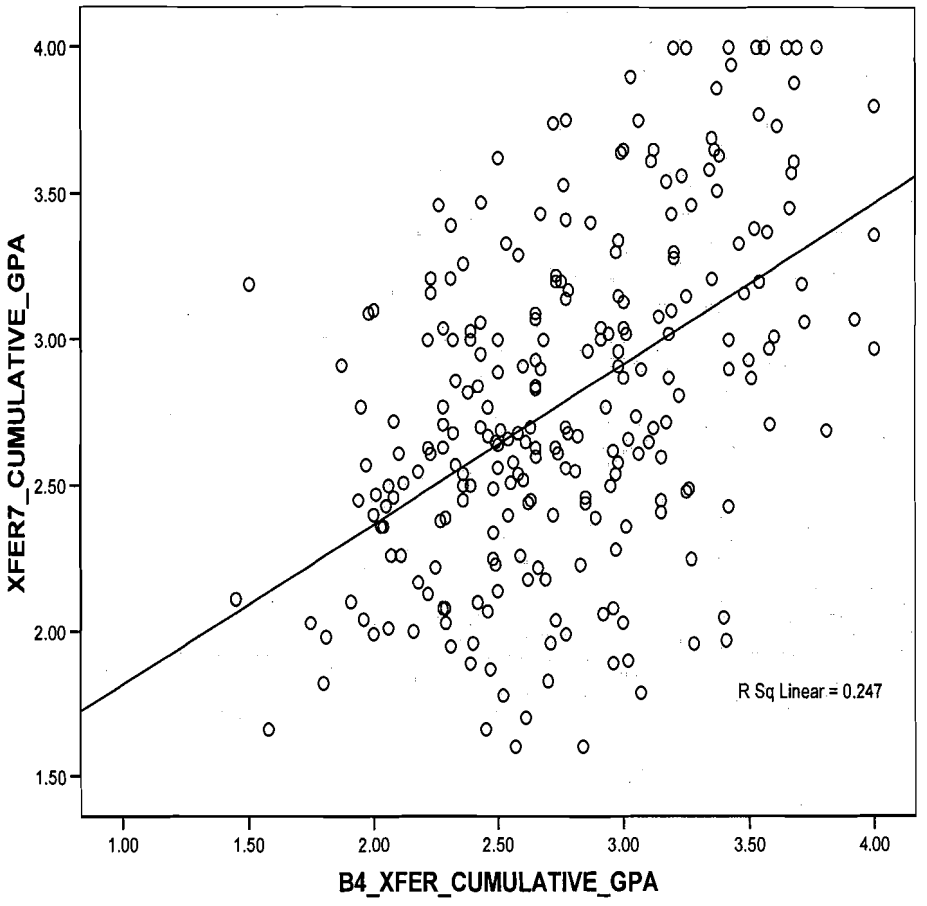


Figure 8

Post-Transfer Grade Point Average After Seven Terms for All Students



As hypothesized, a relationship exists between pre-transfer grade point average and post-transfer grade point average for all students. The direction of the relationship is a low positive association between the variables. Between 23% and 26% of the variance after transfer is associated with pre-grade point average scores. The prediction equation does not completely address student performance before transfer and after transfer as not all of the points fall directly on the line of best fit. However, the null hypothesis was rejected for students as a whole. As indicated in the literature review, other factors in addition to grade point average contribute to student success after transfer from a two-year college to a university or four-year degree granting institution (e.g., academic programs, student support systems, peer networks, academic enrichment programs, mentors, and campus climate).

The information on the following pages collapses the correlation coefficients for each group of students. Few student groups display very strong linear relationships; however, a positive relationship does exist between pre-transfer grade point average with post-grade point average for all students and students disaggregated according to gender using general linear regression.

Tables 37 through 39 on the following pages provide the regression coefficient and adjusted coefficient at two, four, and seven terms following transfer for all students as a whole, students sorted by gender, and students sorted by race/ethnicity. Although some subset of the total number of cases could be studied (e.g., Caucasian/white females, African-American/black females, and Caucasian/white males), due to the lack of valid cases for all groups disaggregated by both gender and race/ethnicity, the only groups that will be reviewed in this research concern all males, all females, all African-Americans/blacks, and all Caucasians/whites.

Analysis of Students Disaggregated by Gender

All Males

For all males, using linear regression analysis for the prediction of post-transfer grade point average using pre-grade point average it was found that the direction of the relationship is a weak positive association between the variables. At two terms following transfer, a significant equation was found [$F(1,116) = 43.810$, $p < .001$], with an R^2 of .274. Subjects' predicted post-transfer grade point average after two terms is equal to .861 + .662 pre-GPA. Similarly, the relationship was positive for all males at four terms after transfer where a significant equation was found [$F(1, 116) = 46.513$, p , .001] with an R^2 of .286. Predicted post-transfer grade point average after four terms is equal to .981 + .622 pre-GPA. Likewise, at seven terms following transfer, a significant equation was found [$F (1,116) = 45.559$, $p < .001$], with an R^2 of .282. Lastly, predicted post-transfer grade point average after seven terms is equal to 1.004 + .628 pre-GPA.

All Females

For all female subjects in this research, the direction of the relationship is a weak positive association between the variables. The regression equation for this relationship was significant for all females at two terms, four terms, and seven terms after transfer. At two terms following transfer, a significant equation was found [$F(1,129) = 30.060$, $p < .001$], with an R^2 of .189. Predicted post-transfer grade point average after two terms is equal to 1.201 + .557 pre-GPA. The relationship was significant for all females at four terms after transfer, where the following equation was found [$F(1,129) = 36.999$, $p < .001$], with an R^2 of .223. Predicted post-transfer grade point average after four terms is equal to 1.424 + .581 pre-GPA. Likewise, the relationship was significant for all females at seven terms after transfer with the following equation, [$F(129) = 33.234$, $p < .001$], with an R^2 of .205. Predicted post-transfer grade point average at seven terms for all women in the study is equal to 1.541 + .470 pre-GPA.

Analysis of Students Disaggregated by Race/Ethnicity

African-Americans/Blacks

The direction of the relationship is a low positive association between the variables. The regression equation for this relationship was significant for all African-American students at two terms after transfer, $r^2 = .116$, adjusted $r^2 = .098$, F (1, 49) = 6.454, $p = .014$. Predicted post-transfer grade point average is equal to 1.435 + .459 pre-GPA at terms after transfer. The relationship was significant for all African-American students at four terms after transfer, $r^2 = .198$, adjusted $r^2 = .182$, F (1,49) = 12.100, $p = .001$. Predicted post-transfer grade point average is equal to 1.280 + .532 pre-GPA at four terms after transfer. Similarly, the relationship was significant for all African-American students at seven terms after transfer, $r^2 = .212$, $r^2 = .196$, F (1, 49) = 13.180, $p = .001$. Predicted post-transfer grade point average is equal to 1.274 + .552 pre-GPA following seven terms after transfer.

Caucasians/Whites

The direction of the relationship is a weak positive association between the variables. The regression equation for this relationship was significant for all Caucasian/White students at two terms after transfer, $r^2 = .212$, adjusted $r^2 = .208$, F (1, 172) = 46.313, $p = .000$. The relationship was significant for all Caucasian/White students at four terms after transfer, $r^2 = .237$, adjusted $r^2 = .232$, F (1, 172) = 53.324, $p = .000$. The relationship was significant for all Caucasian/White students at seven terms after transfer, $r^2 = .229$, $r^2 = .224$, F (1, 172) = 50.998, $p = .000$. Subjects' predicted post-

transfer grade point average two terms after transfer is equal to 1.051 + .603 pre-GPA. Likewise, predicted post-transfer grade point average following four terms after transfer is 1.241 + .553 pre-GPA. Lastly, predicted post-transfer grade point average following seven terms after transfer is 1.241 + .553 pre-GPA.

A weak positive relationship exists between pre-transfer GPA and post-transfer GPA for women and African-American students over time. For women as a whole, the small linear relationship was $r^2 = .189$ at two terms, $r^2 = .223$ at four terms and $r^2 = .205$ at seven terms after transfer. African-American student grade point averages indicate that a small positive relationship, $r^2 = .116$, adjusted $r^2 = .098$, exists between pre-transfer grade point average and transfer after two terms at a given receiving institution. For African-American students as a whole, the relationship slightly increases over time at four terms after transfer ($r^2 = .198$, adjusted $r^2 = .182$) and seven terms after transfer ($r^2 = .212$, adjusted $r^2 = .196$).

As hypothesized, a relationship exists between pre-grade point average and post-transfer grade point average at two, four, and seven terms after transfer. The strength of the relationship decreases over time. Accuracy in predicting post-transfer grade point average was low to moderate between and among groups. The literature suggests that this is due to the variability of experiences post-transfer, attributes and rigor of the receiving institution, and preparation before transfer. Other variables that could not be controlled for include student obligations and experiences inside and outside of the learning environment. Much of the variation is unexplained and the literature suggests that other variables inclusive of study habits, motivation, and academic curricular

resources contribute to post-transfer grade point average attainment. Tables 37 through 39 on the following pages and Figures 8 through 10 provide an overview of the numbers of students in each group and the correlation between pre-transfer and post-transfer grade point average.

Based on the analysis of all students and sub-groups within the cohort of students for which grade point averages and other characteristics were collected for the fall 2001 through fall 2005 cohort, a weak positive relationship exists between pre-transfer grade point average and post-transfer grade point average. The relationship was significant for all students at two, four, and seven terms after transfer. Between 23% and 26% of the variance after transfer is associated with pre-transfer grade point average scores. Results based on the use of simple linear regression suggest that pre-transfer grade point averages can be used, to a certain extent, to predict post-transfer grade point average performance.

Table 37

Transfer Grade Point Average After Two Terms

Subject	R Square	Adjusted R Square	F	df	p
All Students	.229	.226	73.501	(1,247)	.000
Disaggregated Data by Gender					
Males, All	.274	.268	43.810	(1, 116)	.000
Females, All	.189	.183	30.060	(1, 129)	.000
Disaggregated Data By Ethnicity					
Asians/Pacific Islanders	N/A	N/A	N/A	N/A	N/A
Blacks/African-Americans	.116	.098	6.454	(1, 49)	.014
Hispanics/Latinos/as	N/A	N/A	N/A	N/A	N/A
Indians/Native Americans	N/A	N/A	N/A	N/A	N/A
Multiracial	N/A	N/A	N/A	N/A	N/A
Whites/Caucasians	.212	.208	46.313	(1, 172)	.000

Table 38

Transfer Grade Point Average After Four Terms

Subject	R Square	Adjusted R Square	F	df	p
All Students	.260	.257	86.639	(1, 247)	.000
Disaggregated Data by Gender					
Males, All	.286	.280	46.513	(1,116)	.000
Females, All	.223	.217	36.999	(1,129)	.000
Disaggregated Data by Ethnicity					
Asians/Pacific Islanders	N/A	N/A	N/A	N/A	N/A
Blacks/African-Americans	.198	.182	12.100	(1,49)	.001
Hispanics/Latinos/as	N/A	N/A	N/A	N/A	N/A
Indians/Native Americans	N/A	N/A	N/A	N/A	N/A
Multiracial	N/A	N/A	N/A	N/A	N/A
Whites/Caucasians	.237	.232	53.324	(1,172)	.000

Table 39

Transfer Grade Point Average After Seven Terms

Subject	R Square	Adjusted R Square	F	df	p
All Students	.247	.244	81.132	(1,247)	.000
Disaggregated Data by Gender					
Males, All	.282	.276	45.559	(1,116)	.000
Females, All	.205	.199	33.234	(1,129)	.000
Disaggregated Data by Ethnicity					
Asians/Pacific Islanders	N/A	N/A	N/A	N/A	N/A
Blacks/African-Americans	.212	.196	13.180	(1,49)	.001
Hispanics/Latinos/as	N/A	N/A	N/A	N/A	N/A
Indians/Native Americans	N/A	N/A	N/A	N/A	N/A
Multiracial	N/A	N/A	N/A	N/A	N/A
Whites/Caucasians	.229	.224	50.998	(1,172)	.000

Multiple Linear Regression of Continuous and Categorical Data

To address questions concerning the impact of gender and/or race/ethnicity on post-grade point average after transfer, multiple linear regression was used to analyze the data further because of the use of categorical and continuous variables. In this research, at least one of the independent variables is categorical with two levels while the other independent variable is continuous. The dependent variables are quantitative. According to Pedazur (1982, p. 272), multiple regression is used in which a dependent variable is regressed on coded vectors that represent a categorical variable in the case of equal or unequal sample sizes. Pedazur states that the use of dummy coding is one of the simplest methods of coding categorical variables such that membership in one category is assigned

a code of one (1) while non-membership is assigned a code of zero (0) (1982, p. 274). In this research, men were coded as 0 and women were coded as 1. Unequal sample sizes are present; out of the 249 valid cases, at least 131 subjects were men and 118 subjects were women.

Three ordered sets of predictors were used in the multiple regression analysis of transfer after two terms. Based on the output, the relationship between pre-transfer grade point average and post-grade point average at two terms after transfer was significant, $R^2 = .229$, adjusted $R^2 = .226$, $F(1, 247) = 73.501$, $p < .001$. Gender did not predict significantly over and above pre-transfer grade point average, R^2 change = .002, $F(1, 246) = .482$, $p = .488$. The regression equation with ethnicity as a predictor was not significant, $R^2 = .231$, adjusted $R^2 = .221$, $F(1, 245) = .025$, $p = .876$. Similarly, a multiple regression was calculated with an unordered set of predictors such that all variables were placed in the equation simultaneously to predict subject's post-transfer grade point average at two terms after transfer based on pre-transfer GPA, gender, and ethnicity. A significant regression equation was found only for pre-transfer GPA [$F(3, 248) = 24.520$, $p < .001$), with an R^2 of .231. Students' predicted post-transfer grade point average was equal to 1.002 + .602 (pre-GPA). Neither gender nor ethnicity was a significant predictor, $p = .489$ and $p = .876$, respectively.

Multiple regression analysis was conducted to determine significance at four terms after transfer. Based on the output, the relationship between pre-transfer grade point average and post-grade point average at four terms after transfer was significant, $R^2 = .260$, adjusted $R^2 = .257$, $F(1, 247) = 86.639$, $p < .001$. Gender did not predict

significantly over and above pre-transfer grade point average, $R^2 = .269$, R^2 change = .263, $F(1, 246) = 3.042$, $p = .082$. The regression equation with ethnicity as a predictor was not significant, $R^2 = .269$, adjusted $R^2 = .260$, $F(1, 245) = .034$, $p = .854$.

Lastly, at seven terms after transfer, multiple regression analysis was used to determine significance among independent variables. Based on the output, the relationship between pre-transfer grade point average and post-transfer grade point average at seven terms was significant, $R^2 = .247$, adjusted $R^2 = .244$, $F(1, 247) = 81.132$, $p < .001$. Gender did not predict significantly over and above pre-transfer grade point average, $R^2 = .255$, R^2 change = .249, $F(1, 246) = 2.633$, $p = .106$. The regression equation with ethnicity as a predictor was not significant, $R^2 = .255$, adjusted $R^2 = .246$, $F(1, 245) = .016$, $p = .898$.

Although no strong linear relationships were exhibited through the analyses, a positive relationship does exist between pre-transfer grade point average with post-transfer grade point average for all students and aggregate sub-groups at two, four, and seven terms after transfer. The strength of the relationship decreases over time. Accuracy in predicting post-transfer grade point average was low to moderate between groups. Neither gender nor ethnicity served as predictors, only pre-transfer grade point average. Again, the literature suggests that this is due to the variability of experiences post-transfer, attributes and rigor of the receiving institution, and preparation before transfer. Other variables that could not be controlled for include student obligations and experiences inside and outside of the learning environment that may include caring for others, work requirements, a change or reversal of an academic or career path, and life

factors that negate time and quality of time spent on academic coursework. Much of the variation is unexplained and the literature suggests that other variables contribute to post-grade point average attainment.

Based on the analysis of the cohort of students for which grade point averages and other characteristics were collected for the fall 2001 through fall 2005 cohort, a weak positive relationship exists between pre-transfer grade point average and post-grade point average. The relationship was significant for all students at two, four, and seven terms after transfer. Between 23% and 26% of the variance after transfer is associated with pre-grade point average scores. Research across both gender and ethnicity for all groups was not conducted due to the small sample sizes encountered for several subgroups.

Discussion and Inferences to Extant Literature

The research and analysis of student performance over time from one sector of higher education to another leads to questions of whether educational achievement and attainment are intricately linked to student knowledge and skills before admittance to postsecondary studies or whether a larger influence exists with regard to the core curriculum and introductory coursework during the initial years of college. A reflection on student grade point averages leads one to question whether the initial years of college and core curriculum are presented with similar rigor between and among institutions. At each point before, during, and after the examination of grade point averages, it was reiterated several times that variation in achievement is dependent upon several factors inclusive of lower-level course preparation. This variation includes both individual and

institutional indicators such as academic preparation, student goals, self-efficacy, academic interactions, social interactions, and operational or bureaucratic interactions of an institution. Transfer education is central to the two-year college mission of institutions within the University System of Georgia. The drop in grade point average after transfer may be characterized as transfer shock. Reasons for this drop may be linked to students becoming accustomed to a new educational environment, both socially and academically. In addition, referring back to the issue of foundational course preparation, the academic standards of receiving institutions, or rather, four-year colleges and universities, may reflect differing expectations of academic performance in those institutional settings.

Another variable that was not a part of this research but could explain student outcomes involves the amount of student-faculty interaction as an influence on academic performance. According to Thompson (2001), "student-faculty interaction plays a role in the perceived quality and value of the learning environment as well as students' self-perception of academic ability and confidence asserted in scholarly activities" (pp. 1 – 2). Other studies have found that certain demographic factors place students at risk of not achieving their goals and/or not completing postsecondary studies such as delayed entry, part-time enrollment, full-time work, financial independence, dependents, and care-taking roles (Schmid and Abell, 2003, p. 3).

A number of major findings emerged from this research. First, it was found that while student data is collected in the student information system, follow-up activity needs to be conducted and capacity added to enable a more thorough data-base analysis of transfer student patterns and educational outcomes. Welsh and Kjorlien (2001), in their

analysis of state-level information systems on transfer students, found that state information systems that include transfer students are used for a wide array of purposes; fewer than one-third of state higher education agencies have identified interinstitutional transfer effectiveness as a primary objective, and systems are used for institutional and state planning purposes and managing institutional enrollments (pp. 319 – 321).

Another finding that emerged from the research was that students tend to experience a drop in grade point average during the first semesters following transfer. Transfer shock has been widely noted in studies that follow transfer to a four-year college or university such that Rhine, Milligan, and Nelson (2000) recommend that institutions prepare students for the transition, especially those students majoring in business, mathematics, and science versus those major in education, fine arts, humanities, and the social sciences (p. 447). To retain students, Rhine et. al. (2000), suggest that institutions offer workshops on the skills needed when considering transfer; develop an information and support network for transitional students; identify future transfer students early; prepare students to work harder during the first and second semesters after transfer to alleviate a drop in grade point average; equip advisors with information concerning program requirements at receiving institutions; and develop articulation meetings on the transferability of specific major classes that include faculty members (pp. 450 – 451).

Finally, the data indicate that a subgroup of minorities and women attend two-year colleges in the university system for which sustained data points along students' academic careers are unavailable. The lack of data suggests that the university system is losing students somewhere in the academic pipeline that warrants further study in terms

of retention and graduation efforts. Based on the resultant grade point average data used in this research, an under-representation of African-American males was present along with male and female Asian American, Hispanic/Latino(a) and American Indian/Native American students. The sample used in this study depicted that minority students were more likely to be female. In Hagedorn's (2004) research on the infrastructural support that colleges would establish if funds were available suggests that the following programs enable institutions to educate diverse populations: learning communities for older and returning adults, mentoring programs for first-generation students, additional support for students with dependents, student tutors in math and the sciences, increased financial aid, and expanding services to weekends and evenings (p. 32). It is recommended that institutions fill in the reporting gaps in order to describe student trajectories along the academic pipeline. Such action would enable the system to determine if a pattern exists of student withdrawal or other circumstances surrounding student academic histories. As a result further research could be undertaken to determine if stop-out or drop-out behavior is attributable to a lack of policy knowledge between two-year and four-year institutions or if institutions need to be more intrusive in disseminating transfer policy requirements (Lee, 2001, pp. 40 – 41). Lastly, such analysis efforts could further enhance policy decisions with regard to student intent at the two-year college level in determining whether students seek courses, transfer after taking a specific number of courses and credit hours, or completion of an Associate of Arts or Associate of Science degree.

Chapter 5

SUMMARY

Chapter Introduction

This chapter follows the degree attainment of the 249 students studied previously in terms of predicting the strength of the relationship between the pre-and-post transfer grade point average. In addition, further analysis was conducted to determine the type of degrees that students completed after transfer.

Findings from the Research

Based on the weak positive relationship between pre-transfer grade point average and post-grade point average at two, four, and seven terms after transfer, it was determined that grade point average is not the most robust predictor of transfer grade point average although a relationship does exist; therefore, other issues need to be addressed to ascertain specific predictors of student transfer success from a two-year college to state or research university. With prediction of the post-transfer grade point average, we need to be cognizant of the fact that grade point average is a proxy for several other variables not included in the model. Several causes are attributable to the phenomenon studied. Grade point averages both before transfer and after transfer were not entered and coded properly in the database of the student information reporting system, thus making it difficult to track student progress post-transfer.

Grade point average combined with other factors can impact successful transfer and matriculation.

Conclusions

Based on further analysis of the cleaned data file disaggregated by gender, it was found that out of 118 male students, 57.6% (n = 68) obtained a degree. At least 34.7% (n=41) of the students obtained their degree in academic year 2005 while 13.6% (n = 16) finished a degree in year 2006. These students were part of the fall 1998 cohort of students seeking a degree. Male students obtained business administration and bachelor of science degrees. Likewise, out of 131 females, approximately 51.1% (n = 67) students completed postsecondary studies. Approximately 32.1% of female students (n = 42) completed their degrees during academic year 2005. The post-secondary credentials obtained were the Bachelor of Arts (7.6%), Bachelor of Business Administration (9.9%), and Bachelor of Science (14.5%) degrees. Few students obtained nursing, health science, information technology, or education degrees. Tables 40 and 41 on the following pages represent the types of degrees attained by males and females in this sample. Based on student progression information, transfer students do exhibit some "transfer shock" but gradually improve their grade point averages after initial transfer over time as evidenced in their performance after four and seven terms following matriculation into a four-year college or university.

Table 40

Male Student Degree Completions

No Degree Completed	50 students or 42.4%%	
Degree Completions	68 students or 57.6%	
Types of Degrees Completed	Frequency	Percent
AB, Bachelor of Arts	7	5.9%
BA, Bachelor of Arts	4	3.4%
BARCH, Bachelor of Architecture	1	.8
BBA, Bachelor of Business Administration	15	12.7%
BFA, Bachelor of Fine Arts	1	.8%
BLA, Bachelor of Liberal Arts	2	1.7%
BS, Bachelor of Science	21	17.8%
BSA, Bachelor of Science in Architecture	2	1.7%
BSBIOL, Bachelor of Applied Biology	1	.8%
BSBIT, Bachelor of Science in Business Information Technology	2	1.7%
BSED, Bachelor of Science in Education	2	1.7%
BSEE, Bachelor of Science in Electrical Engineering	2	1.7%
BSEET, Bachelor of Science in Electrical Engineering Technology	1	.8%
BSENVS, Bachelor of Science in Environmental Science	1	.8%
BSFCS, Bachelor of Science in Family & Consumer Science	2	1.7%
BSFR, Bachelor of Science in Forest Resources	1	.8%
BSID, Bachelor of Science in Industrial Design	1	.8%
BSME, Bachelor of Science in Mechanical Engineering	2	1.7%

Table 41

Female Student Degree Completions

No Degree Completed	64 students or 48.9%	
Degree Completions	67 students or 51.1%	
Types of Degrees Completed	Frequency	Percent
AACC, Associate of Arts – Core Curriculum	2	1.5%
AB, Bachelor of Arts	5	3.8%
BA, Bachelor of Arts	10	7.6%
BBA, Bachelor of Business Administration	13	9.9%
BFA, Bachelor of Fine Arts	1	.8%
BGS, Bachelor of General Studies	1	.8%
BS, Bachelor of Science	19	14.5%
BSA, Bachelor of Science in Agriculture	2	1.5%
BSBIT, Bachelor of Science in Business Information Technology	1	.8%
BSCHE, Bachelor of Science in Chemical Engineering	1	.8%
BSED, Bachelor of Science in Education	7	5.3%
BSFCS, Bachelor of Science in Family & Consumer Sciences	1	.8%
BSHS, Bachelor of Science in Health Science	1	.8%
BSN, Bachelor of Science in Nursing	1	.8%
BSRS	1	.8%
CER1, Certificate of One Year	1	.8%

Implications and Suggestions for Further Research

Enrollment at community colleges has increased over time. According to the Tables 42 and 43 below and on the following page, the number of associate degree holders and associate-degree granting institutions represents a substantial portion of postsecondary degree attainment. In addition to educational opportunities available through public, university system institutions, the number of college and university options in Georgia compared to other SREB states provides students with several options in terms of attaining the degrees and skills needed for higher earnings potential in the region.

Table 42
Enrollment at Community Colleges in the Nation

	Total	Men	Women
Enrollment at 2 yr. Institutions (Fall 2001)	6,352,269	2,718,167	3,634,102
Degrees Conferred at 2-yr. Institutions	336,438	151,841	184,597
Associate Degrees Conferred at 2-yr. Institutions	493,221	192,354	300,867

Source: Digest of Educational Statistics, 2003, Table 172, Enrollment, Staff, and Degrees conferred in Postsecondary Institutions Participating in Title IV programs, by Level and Control of Institution, Sex, and Type of Degree: Fall 2001and 2001 – 02 retrieved from http://nces.ed.gov/programs/digest/d03/tables/dt172.asp

Table 43

Degree-granting Institutions by Type and Control

SREB States	Total Institutions	All Public	Public 2-yr.	All Private	Private 2-yr.
US	4,168	1,71	1,101	2,456	743
Georgia	124	74	55	50	12
Alabama	75	47	29	28	11
Arkansas	46	33	23	13	3
Delaware	10	5	3	5	1
Florida	161	0	28	14	41
Kentucky	79	37	29	42	16
Louisiana	87	62	47	25	12
Maryland	63	29	16	34	6
Mississippi	119	31	16	34	6
North Carolina	126	75	59	51	7
Oklahoma	53	29	15	24	7
South Carolina	63	33	21	30	7
Tennessee	89	22	13	67	20
Texas	200	109	67	91	36
Virginia	100	38	24	62	16
West Virginia	37	15	3	22	12

Source: Digest of Educational Statistics, Table 247. Degree-granting institutions and branches, by type and control of institution and state or jurisdiction: 2002-03 retrieved fromShttp://nces.ed.gov/programs/digest/d03/tables/dt247.asp

Based on the transfer status and degree attainment of students and concurrent with the literature, several factors influence whether students successfully transfer to an institution and graduate with a bachelor's degree. These factors include type of academic program, performance, policies, administrators, non-linear transfer, academic and institutional support services, and personal and professional support networks (Lee, 2001; Arnold, 2001). It is noted that only half of the student cases for both men and women available for inclusion in this study, completed the transfer with a four-year degree.

What does this mean? Either several factors inhibit completion of the degree or students did not necessarily seek a baccalaureate degree as the end result of their educational experience. Further study would need to be conducted using a qualitative design with perhaps focus groups and interviews to ascertain recurrent themes. Likewise, a more in-depth study of specific transfer articulation agreements and how such agreements are interpreted between and among university system institutions could further clarify the transfer process and how students are categorized and recorded.

The assessment of transfer students goes beyond transfer activity and how many students moved from one sector to another. Rather, several practices require monitoring to ensure that transfer students are treated equitably as native students at any institution. One such area that requires closer scrutiny is the coding of transfer student grades, grade point averages, and courses. As stated previously, thousands of the cases in the original data set could not be used in this study due to the lack of coding or incorrect coding in order to identify student progression. Policies and guidelines require clear interpretation in order for transfer ombudspersons to advise students on issues concerning transferability of courses, career paths, degree completion requirements, and a host of other issues. What happened to the students who did not complete a baccalaureate degree? Further research is needed to determine why students do not complete either associate or baccalaureate degrees upon admittance to a postsecondary institution. Such research could include analysis of factors that contribute to student success and the effectiveness of two-year college preparation for student transfer. Analysis of transfer issues need not stop at the two-year college level. The transfer student experience upon

entering another institution requires examination as well as the academic requirements and outcomes of student majors according to discipline. Other student demographic comparisons that may be used in future studies include age of the student, comparison of support services, impact of a specific educational environment, and degree aspiration.

Observations from Data Gathering

In order to determine institutional policy effectiveness, several indicators must be used to evaluate an institution's success. These indicators need to be valued by the institution and viewed from several different perspectives. The development of information concerning institutional policy effectiveness includes information germane to the mission of the institution and its students. Thus, a student tracking system that includes descriptive data elements that can be used in longitudinal studies is imperative to determining student outcomes.

For example, Fonte' recommends that in order to determine student intent at time of entry, institutions need to code and update student aspirations from time of admittance in terms of their intent to transfer, take courses, or complete a terminal, or occupationally-specific degree at each registration period (1994). Cejda and Kaylor's (2001, p. 627) qualitative analysis of students who transferred from a public community college to a public state university indicates that the five most common student intentions were (1) completing general education requirements, (2) getting the hard classes (i.e., mathematics, sciences, English) out of the way, (3) saving money for a year or two, (4) deciding on a major, and (5) completing prerequisites for upper-level courses. Fonte'

further suggests that student tracking systems not only provide the footprints of individual student progress, but also "create a proactive assessment environment, provide insights into student cohorts, and facilitate interventions that will encourage student success" (1994, p. 42). These student tracking systems need to be developed under system guidelines that provide for the homogenous data collection and coding of transfer students.

Presidential support of an assessment and research function would need to be implemented with regard to financing, software and hardware compatibility, a cultural embrace of such data gathering, and the capability to store and receive student-specific assessment data. In addition to establishing a supportive tracking system, an analysis of student outcomes is imperative to determine whether students truly have access to and persist in the University System when their postsecondary studies begin at a two-year college. Perhaps, then the state can begin to address questions concerning diversity in the workforce in specific occupations and how this translates to the social mobility of various communities.

Lastly, the organizational structure of the university system and methods of reporting data are formed around an operating core. Resources are not necessarily available to extract data for reports, analysis, and research. Instead, data generation is applied to standard reporting requirements. If the professional base were decoupled and resources provided to units engaged in all facets of student success, then perhaps opportunities for innovation and solutions to student retention and progression could lead to increased student success measures.

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APPENDIXES

APPENDIX A

Data Codebook

Field Name	Meaning
INST_CODE	Institution SIRS Code
FICE_CODE	Institution FICE Code
INST_NAME	Institution Long Name
STUDENT_ENCRYPT_ID	Student Encrypted I.D.
FTF_FISCAL_YR	Fiscal Year of Matriculation Term
FTF_FISCAL_QTR	Fiscal Term
FTF_SEX_CODE	Gender 0 = Male 1 = Female
FTF_ETHNIC_ORIGIN	Race/Ethnicity 1 = Asian 2 = Black 3 = White 4 = Hispanic/Latino 5 = Native American 6 = Multi-racial
FTF_HRS_ENROLLED	Hours Enrolled/Attempted
FTF_DEGREE_LEVEL_CODE	Degree Level
FTF_DEGREE_ACRONYM	Degree Acronym
FTF_CIP_CODE	CIP Code – Instructional Program

APPENDIX A

Data Codebook (Continued)

Field Name	Meaning
Data Records before Transfer at the Two-year College	
B4_XFER_FISCAL_YR	Fiscal Year of Matriculation Term
B4_XFER_FISCAL_QTR	Fiscal Term
B4_XFER_HRS_EARNED	Cumulative hours earned before transfer
B4_XFER_CUMULATIVE_GPA	Cumulative GPA
B4_XFER_GRAD_FLAG	Graduation degree – if a graduation record is present = 1; if no record is present = 0
B4_XFER_GRAD_YR	Fiscal year of graduation
B4_XFER_GRAD_QTR	Term of graduation
B4_XFER_GRAD_DEGREE_LVL_CD	Degree level code
B4_XFER_GRAD_DEGREE_ACRONYM	Degree acronym
B4_XFER_GRAD_CIP_CODE	CIP Code
Data Records – First data recorded at a four-year receiving institutions	
XFER1_INST_CODE	Institution SIRS Code
XFER1_FICE_CODE	Institution FICE Code
XFER1_INST_NAME	Institution Long Name
XFER1_FISCAL_YR	Fiscal year of matriculation term
XFER1_FISCAL-QTR	Fiscal term
XFER1_TRANSFER_HRS	Cumulative transfer hours accepted
XFER1_TRANSFER_GPA	Cumulative transfer GPA
Data Records – One term after transfer from a two-year to four-year institutions	
XFER2_FISCAL_YR	Fiscal year of matriculation term
XFER2_FISCAL_QTR	Fiscal term
XFER2_HRS_EARNED	Cumulative hours earned
XFER2_CUMULATIVE_GPA	Cumulative GPA

APPENDIX A

Data Codebook (Continued)

Field Name	Meaning
Data Records – One year after transfer from a two-year to four-year institutions	
XFER4_FISCAL_YR	Fiscal year of matriculation term
XFER4_FISCAL_QTR	Fiscal term
XFER4_HRS_EARNED	Cumulative hours earned
XFER4_CUMULATIVE_GPA	Cumulative GPA
Data Records – Two years after transfer from a two-year to a four-year institution	
XFER7_FISCAL_YR	Fiscal year of matriculation term
XFER7_FISCAL_QTR	Fiscal term
XFER7_HRS_EARNED	Cumulative hours earned
XFER7_CUMULATIVE_GPA	Cumulative GPA
Data Records – If a student earns a degree after transfer from a two-year to a four-year institution	
XFER-GRAD_FLAG	Calculated field – 1 = graduation record 0 = no graduation record
XFER_GRAD_YR	Fiscal year of graduation
SFER_GRAD_QTR	Term of graduation
XFER_GRAD_DEGREE_LVL_CD	Degree level code
XFER_GRAD_DEGREE_ACRONYM	Degree acronym
XFER_GRAD_CIP_CODE	CIP Code

Undergraduate Degree Acronyms	**Meaning**
-- Z	Certificate of less than one year
-- C	One-year vocational-related certificates
-- E	Two-year vocational-related certificates
-- V	Career associate degree: AAS, AAT
-- A	Associate
-- B	Bachelor's
-- Q	First Professional

APPENDIX A

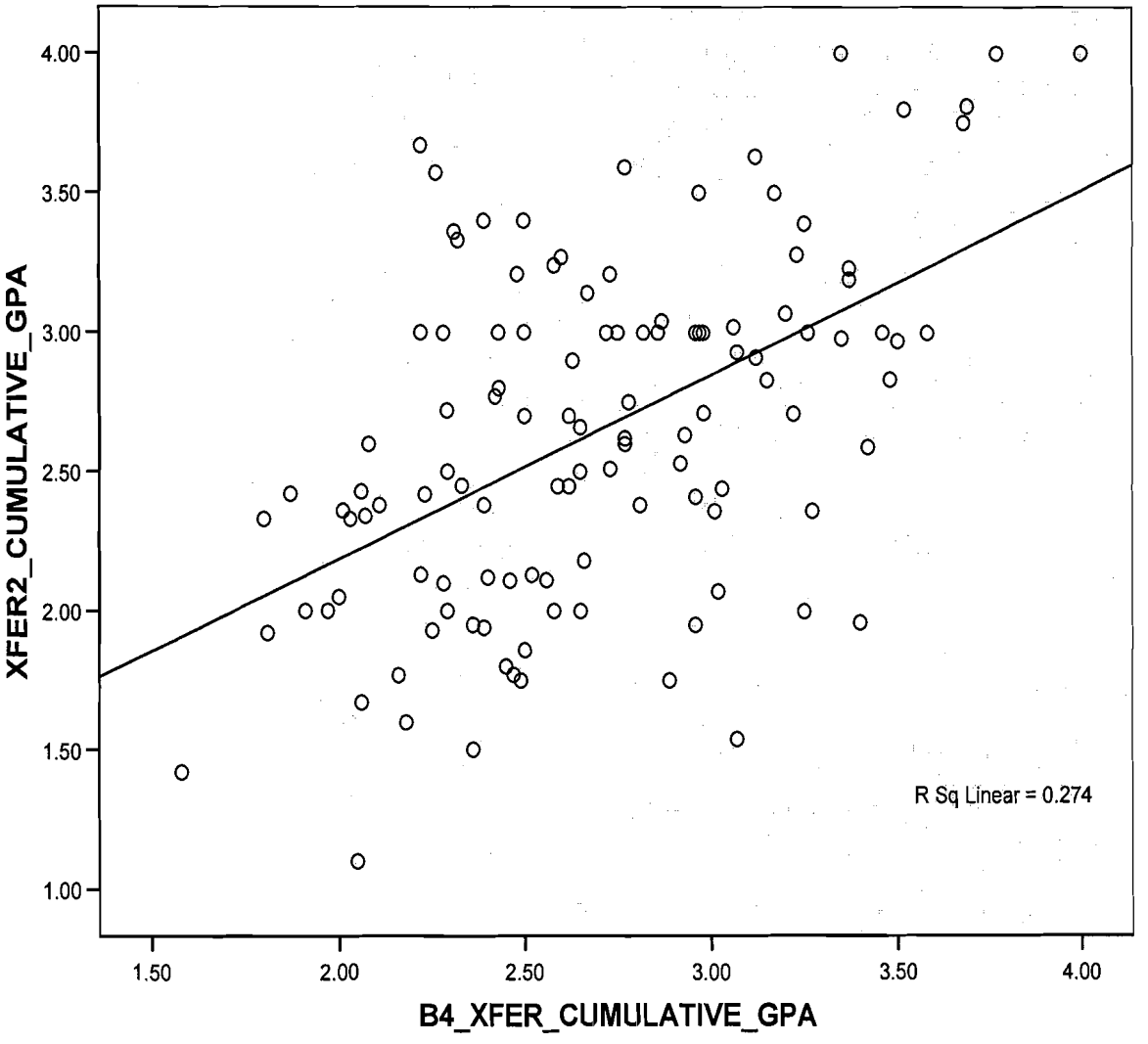
Data Codebook (Continued)

Field Name	Meaning
Non-undergraduate Degree Acronyms	**Meaning**
-- F	Advanced Certificates
-- M	Masters
-- S	Educational Specialist
-- D	Doctorate
-- P	First Professional/First Professional A
-- X	Non-degree seeking, post baccalaureate
-- N	Non-degree seeking undergraduates

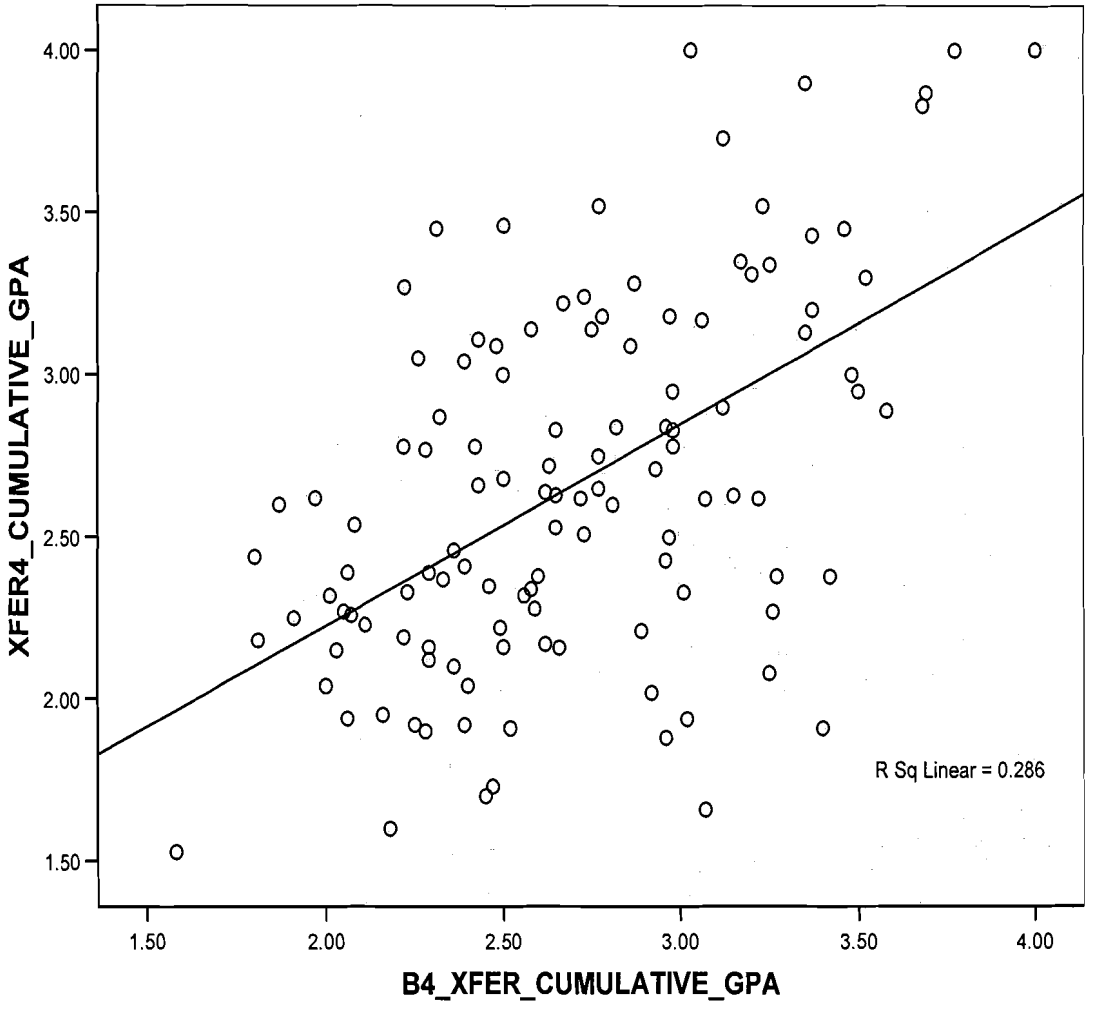
APPENDIX B

Statistical Scatter plots of Transfer Predictions

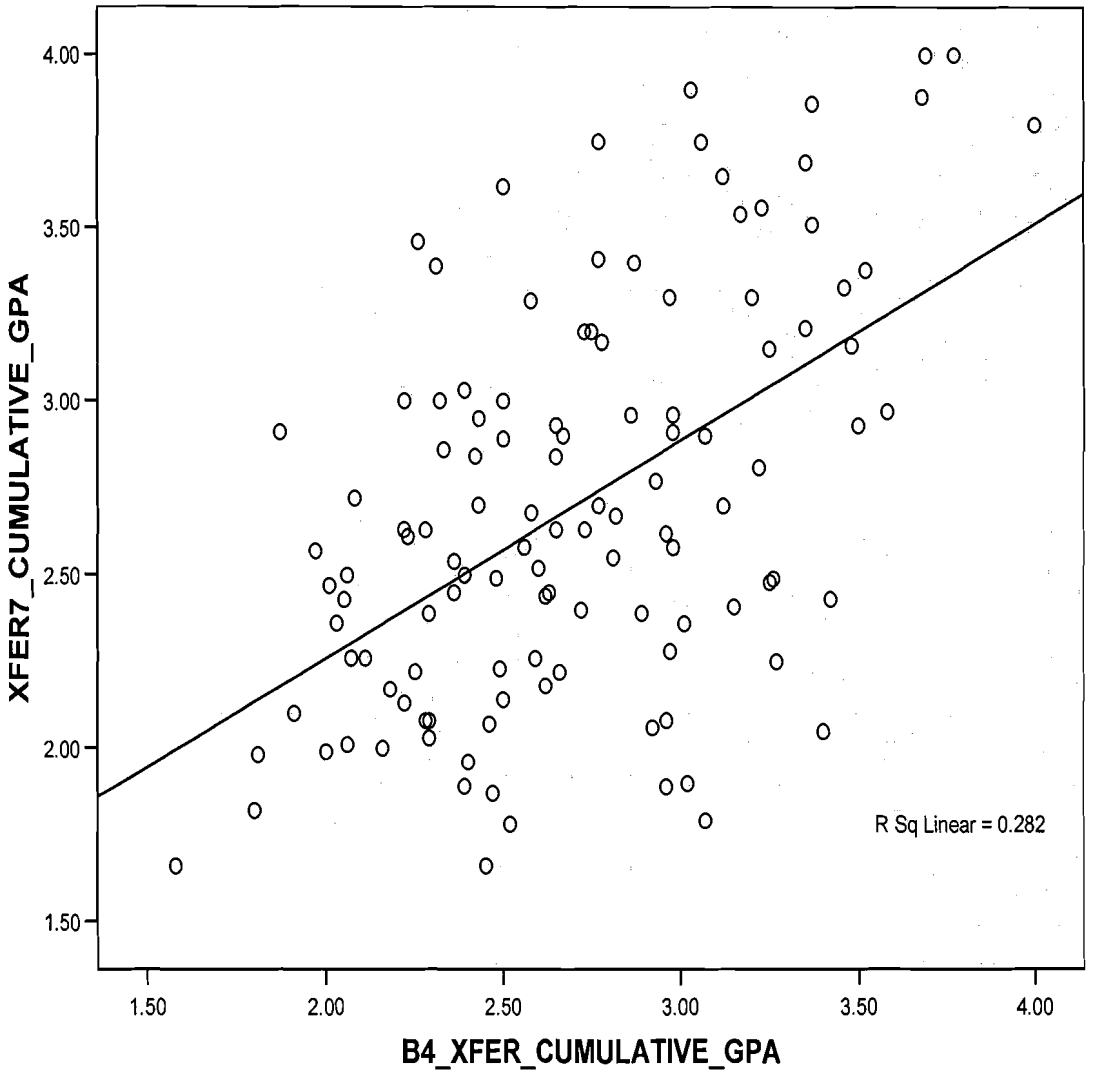
Post-Transfer Grade Point Average After Two Terms for All Males



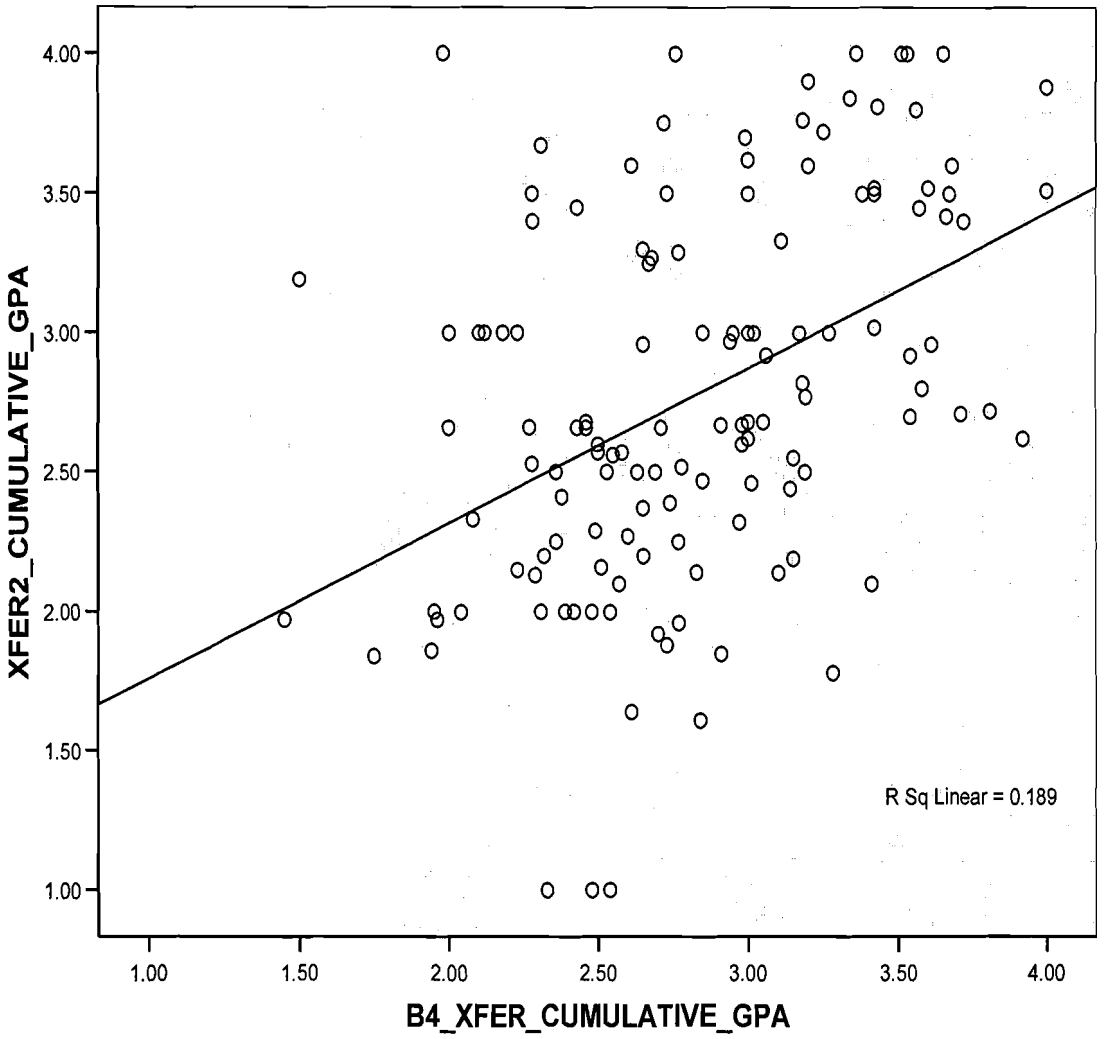
Post-Transfer Grade Point Average After Four Terms for All Males



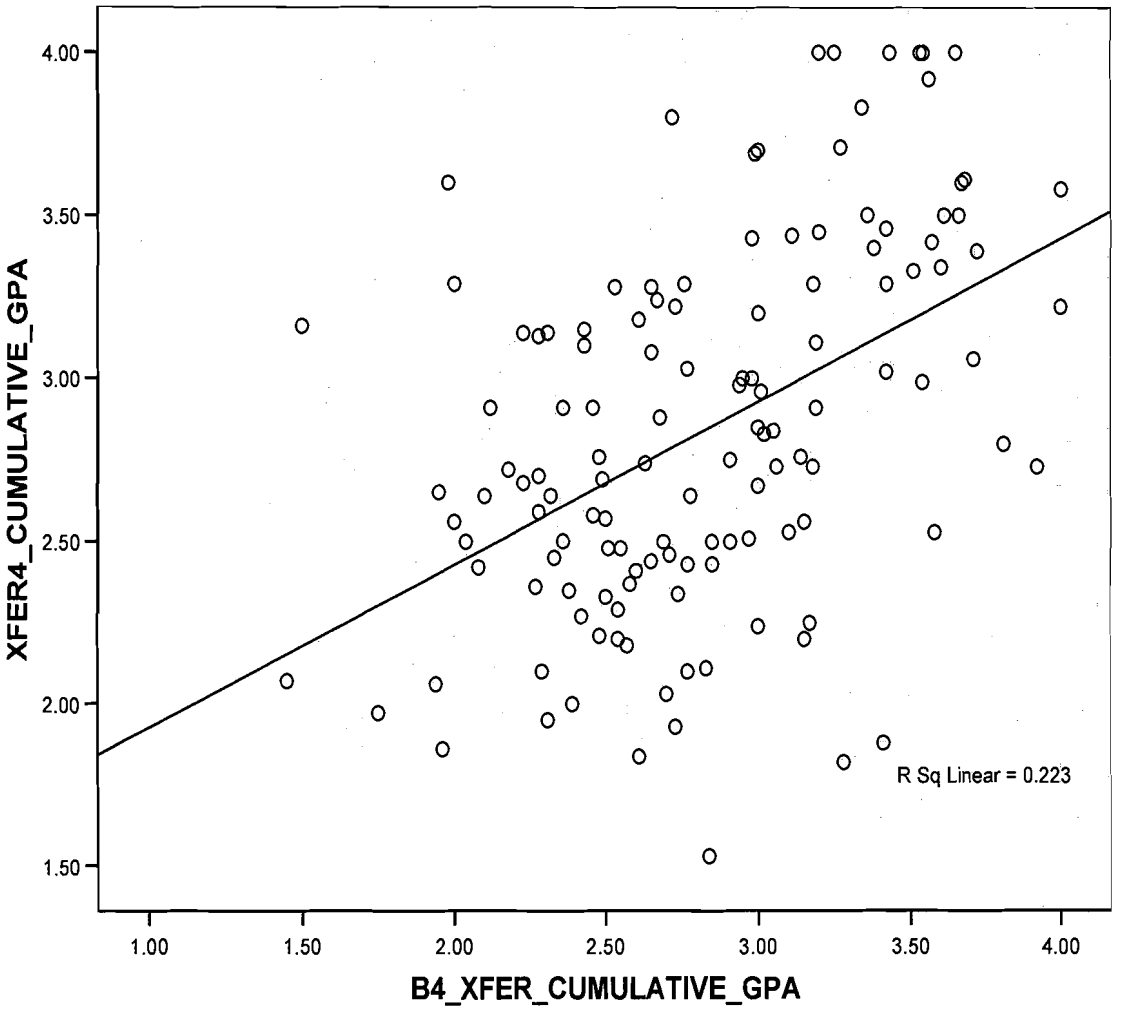
Post-Transfer Grade Point Average After Seven Terms for All Males



Post-Transfer Grade Point Average After Two Terms for All Females



Post-Transfer Grade Point Average After Four Terms for All Females



Post-Transfer Grade Point Average After Seven Terms for All Females